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PHYSIC AND FICTION

PHYSIC AND FICTION

BY

S. SQUIRE SPRIGGE

AUTHOR OF 'ODD ISSUES,' 'LIFE
OF THOMAS WAKLEY'

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PREFACE

THERE are questions whose medical bearing is as obvious as their general importance, though answers to them cannot be dictated by medicine. Such questions are these, for example, to mention three that have received and will receive discussion:—Whether health certificates are necessary for eugenic marriages; Whether the profession of medicine is unduly or sufficiently controlled; Whether secret poisoning is on the increase. It may be easier to come to conclusions upon these, and similar debateable matters, if some of the reasons for and against prevalent views are set out.

I have gone to well-known stories to illustrate certain of those views. Most of the books quoted are many years old, but they are ones with which every one may be familiar, while any expression of opinion in them shows the long establishment of the methods of thought.

Four chapters in their original form appeared in the *Cornhill Magazine*, and parts of others in the *Nineteenth Century and After*, the *Contemporary Review*, the *English Review*, and the *Burlington Magazine*. I wish to thank the respective editors for permission to include these chapters here.

S. S. S.

STOKE GREEN,
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CHAPTER I

MEDICAL PRIESTCRAFT

The Universality of Medicine—The Distrust and Faith of the Public—The Development of General and Medical Education—Podsnap and a Parable—The Prospects under a Ministry of Health—The Question of Legal Protection.

THE importance and universality of medical interests which had become of late years obvious to the public, if only because of the amount of legislation inspired by the desire to save life and preserve health, are now recognised in the institution of a Ministry of Health. The Children's Bill, the Registration of Midwives, the Inspection of School Children, the various Public Health Acts, Acts to ensure purity of food, the Factory Acts, Quarantine legislation, even the Licensing Act, suggest themselves at once as measures having a distinctly medical bearing, and the arguments employed within and without Parliament in their discussion could all have found inspiration in medical textbooks. Numerous public orders for the notification of diseases, and certain national movements for combating them, have emphasised the world's dependence upon right medical guidance. It has, as a result, been borne in upon us that every phase of life, every art and science, every calling and career, every edifice and exploit, every crisis and

catastrophe, may be viewed from a medical standpoint ; and while members of the medical profession may be inclined to regard existence too exclusively from this standpoint, all, whether specially interested, or assisted only by general intelligence, or, perchance, hampered by a want of imagination, are bound to keep the medical factor in remembrance. And, through the magnificence of the unknown, those who know least about therapeutics give them the most excited attention ; wherefore the majority of the questions asked by the public of doctors may receive the flat ' yea ' or ' nay ' which is the only possible reply, but which forces medicine into an unsought position of popishness.

The prominence of medicine in men's thoughts grew during the War, and is now even more marked. It may be realised that this position, however flattering, is not without its present drawbacks for the medical practitioner, but it is one of enormous promise for the world ; the drawbacks, as far as the medical practitioner is concerned, are of small consequence in comparison with the promise, and will disappear as knowledge progresses. Where medicine is made to pontificate, the leaders, in giving advice, must take risks that never before offered themselves, but with the discussion of this advice will come the revelation to the public that there are sense and method behind medical science. That, at any rate, is the comfortable belief here adopted. The interest in medicine that is now

shown compulsorily, reluctantly, or even with too great alacrity, by the public will be replaced, in no short time (I think), by some general understanding of the aims of hygiene, and by common consent to take all steps to maintain a high standard of health.

Criticism of the professed expert will then be enlightened, and will keep medical counsel authoritative where it is asked for ; resistance to what is undisputed in scientific opinion will be held by society at large to be a menace to public safety, and will be excused rather out of toleration for ignorance than out of respect for the manifestation of independence. It should be possible to avoid the bitterness and foolishness of making martyrs, by ensuring that enactments, made in behalf of public health, are capable of popular explanation. We are far from such a state of things now, and narrow and timid spirits among medical men, either afraid of or intolerant of public judgment, invite unquestioning acquiescence in their plerophories ; but we are none the less approaching the day when familiarity with the principles of health will be the property of all educated communities, and when most communities will be educated at least to such a point that the majority will be able to sift gross and palpable falsehood from the proven truth, and thus to advance irresistibly the doctrines of right judgment.

What are the drawbacks to-day for the medical

practitioner, the disappearance of which is prophesied in the near future ? They are the distrust of the public and the unreasoning faith of the public, for these are the things which lead to disappointment when impossible events do not take place, and to want of appreciation when great deeds have been accomplished. From this situation there arises a sense of irritation which is none the less real because both parties feel that their variance is unreasonable. The medical man longs to say : Such a thing is so because it is so, and no purpose is served by my disputing with persons who cannot follow my arguments ; but the most arrogant of his species know that this position cannot be taken up in the twentieth century, though it might have been pardonable two hundred years ago. The layman would like to say : Such a thing is not so because many occurrences disagree with the proposition ; but only the very self-satisfied can assume this front towards a sincere worker in what after all must be a special line of learning in many cases, however general the interests involved.

The distrust of the medical man is as old as the world, and the same may be said of the unreasoning faith in him, but while both will cease when the aims and principles of medicine are better estimated, both have been increased by the great advance in general knowledge due to the spread of education, together with the stronger enlightenment of the public as regards hygiene. The increasing wisdom of the public has led to more

questions being asked, but not, as yet, to a parallel comprehension of the answers. The science of medicine progressed as quickly as, if not more quickly than, any other branch of human knowledge during the last strenuous century, but its strides forward have not been taken at their proper worth by those who are outside the actual struggle. There is nothing surprising in this. Some of us have attended a race-meeting of motor-cars or bicycles, and have found how impossible it is to guess which is the winning competitor owing to the 'lapping' that may take place on a circular course, and to the working of time handicaps which we have understood only imperfectly. We have been unable to believe that the car or cycle which is leading as it passes us is not the winner, and, on having our impressions corrected, have felt a little impatient of the methods employed. We wish that we could see all the competitors started side by side at the same time, off the same mark, to race their fifty miles on a straight track. That would be a race which we could understand ; we could see how each competitor stood at a given point, and could recognise the winner without having to be told of non-apparent conditions which are determining the destination of the prizes.

It is an unfortunate fact that the meaning of much progress which has taken place in medical science is lost upon those who are not actually taking part in the struggle, or who are not aware of the handicaps or allowances under which the work

is being done, or of its exact object. This breeds annoyance. A large number of intelligent people say, Where is the progress of medicine? People still die of pneumonia, and medical science has not come to an agreement as to a routine of therapeutics. Cancer is on the increase, and much of the work that is being done in connection with it has no direct bearing on treatment. Influenza has recently decimated populations, and we are told that its causal agent or agents being still unproven, medicine cannot propose a specific remedy, but must content itself with the treatment of symptoms which may be due to the malign presence of germs not peculiar to influenza. Instances might be multiplied where the public, not wholly understanding the conditions of the race between science and disease, have been unable to apprehend how far medicine is gaining in the struggle. Such information as is supplied to the public is very generally supplied in an unassimilable form, the language for necessary reasons of precision being highly technical. For example, the publication of the proceedings at the numerous international congresses having some hygienic or sanitary reason should help to make a very large body of readers aware of what is being done in the medical world, but the debaters cannot argue with one another if they do not understand thoroughly each other's positions, and this can, of course, only be secured by the rigid use of scientific terms. As more and more of the grammar of preventive

medicine becomes familiar knowledge, it will be more and more easy for all to perceive what the professional expert is talking about ; but for the present the public is puzzled, alike by the apparent long-windedness of the discussions and by lack of immediate reform, following upon any recommendations made by the general resolutions of the congresses. It finds medicine not only wordy but unpractical, not perceiving that all which a congress can possibly accomplish is to place before Governments the expert opinion, leaving the Governments, whether of their own initiative or in deference to popular wish, to give effect to the opinion by legislation.

These circumstances are bound to affect medicine nearly, because the spectators of the race between science and disease cannot be disinterested, and when they miss the significance of important stages in the contest they do not pause before allotting the blame. And it is a disagreeable fact that things may appear worse as they are growing better ; medicine may be more shrewdly criticised as the time gets nearer when its work will be more highly prized. All men in all times have been deeply concerned about their healths ; and all men in all times have had some knowledge of medicine derived from personal experiences, well-founded tradition, and an elementary sense of logic. Though profoundly anxious to be cured, the public was formerly prepared to leave the processes to be employed in the hands of medicine men who

knew the secrets of nature. It is all to the good that this position is changed, but for the time being there are some who miss the old attitude of unquestioning deference. The silliness of those who harbour such a regret is not so surprising as their short-sightedness. The expansion of learning that has taken place in medicine has been going on in all other branches of knowledge, whether nearly allied to medicine or not ; but the doctor has not been prompt to note the general advance or to read in it the promise of the future. Where the sciences more directly ancillary to medicine are concerned, the old boundaries between them and medicine have been removed, so that no man can say exactly where chemistry stops and where physiology begins, what familiarity with electricity rightly appertains to the medical man's calling, or what knowledge of physics or of statistics should be presupposed in a medical practitioner. Not only has the medical student much to learn, but his status is altered when he has learned it. Instead of occupying one of the three peaks wherefrom the exponents of the only learned professions—divinity, medicine, and law—looked down on the unlettered masses, the medical man is now classed with other practical workers who have an equal claim with him to be considered men of science. Such persons will not revere the practice of medicine as something too learned or too mysterious for their grasp, although they may respect it because of its scientific aims. They will

be critical, and it is right and fair that they should be, but for the time being the profession of medicine is often put into an awkward position thereby.

A medical man is not necessarily as good a chemist as a pure chemist, or as resourceful an electrician as a pure electrician, or as versed in the controversies of Darwinians, Neo-Mendelians, and others as the pure biologist, or as astute a statistician as an actuary; at the same time his chemistry, his electricity, his biology, and his mathematics have to be brought into action not in the ideal or exact conditions of laboratory or workshop, and not in accordance with well-argued theory, but in all sorts of environments, in all sorts of conditions, and on subjects in all sorts of moods. The pathology of the sick man is complicated not only by his individual physiology and psychology but by those of his medical man; and physio-psychopathology, with two personalities involved, forms a difficult analytical study, as Cornelia Blimber has shown once and for all. Exact results cannot always be expected, the laws of averages and the deductions of mathematical probabilities must be set off against individual successes and failures, and though it would be too sweeping to say that the only way of estimating the progress of scientific medicine consists in showing that vital statistics improve steadily, yet figures, properly corrected and properly used, form the most valuable testimony to advancement.

This compound of certainties and uncertainties,

this science based on other sciences, this art in the practice of which intuition and genius can play as great a part as they can in music, has been placed on a more secure footing by the institution of the Ministry of Health whose executive officers are the doctors of the country. The result is that the cry of medical priestcraft has been raised, and will be raised still louder if any Government inquires into the results of unqualified medical practice, as many Governments have been urged to do.

Hitherto the relations between medicine and the State have been limited, and the need for such inquiry has not been as obvious as has the inconvenience that would ensue upon it. But to-day Parliament must give hearing to measures of reform demanded by the Ministry of Health, and ere long the licence of unqualified medical practice will come under consideration. When this happens scientific medicine must be prepared for the accusation that its followers exercise 'the arts used by ambitious and worldly priests to impose upon the multitude.' The whole meaning of what is being done in medicine escapes the intelligence of those who join in this cry of medical priestcraft. But it is unwise of medicine to provoke attack through seeking unnecessary protection, and careless of its disciples not to perceive the grounds upon which attack can be based.

There is no doubt that a large section of the public views the opinion of scientific medicine with suspicion. The indisputable services of medicine

during the War have led to some revision of opinions and change of bias, but there is still a belief, fairly widespread, that those who pursue medicine as a calling desire to enslave the minds of their fellow-citizens. The critics of medicine are in revolt against the edicts of hygiene, considering them intolerable because founded on principles which appear to be so disputable, which are so disputed, and which, it is admitted, are not in all instances very stable. Having pointed out the failure of medicine to cure cancer or to prevent appendicitis, they proceed to argue thus : A hundred years ago bleeding was an almost universal procedure ; now bleeding is discountenanced entirely by medical men as a general mode of therapy, though in particular cases it is still employed. More recently Koch, or rather his too sanguine followers, proclaimed tuberculin as a panacea for tuberculosis, a view that was very generally adopted, to be very generally discarded and again to gather adherents. If such right-about-turns can be made, why should not their like be made again ? The question can only be answered by admitting that medicine is fallible, and the answer is a very conclusive one. Medicine is not as yet an exact science. Results sometimes appear to justify means without it being possible to determine the intervening processes ; and means which ought to lead in certain directions, by failure of intervening processes give no determined results. All this cannot be denied. But what is not sufficiently appreciated is that

medicine is advancing all along the line towards the position of an exact science, while losing little of its claims to be an art, and that the risk of any generally wrong therapeutic measure being thrust upon the public decreases steadily year by year. Individual medical men will make, and must make, individual errors, and if one of these has a commanding personality he will for a time attract disciples ; but, since modern methods of medical research began to be put into practice, the opportunity for a wrong or even an empirical scheme of therapeutics being adopted by medical men as a body has become very small. Granted that in all instances a logical sequence cannot be found in the cause and treatment of disease—here the cause, there the treatment, and in a third place the relation of treatment to cause or cause to treatment cannot be stated ; on the other hand, it must also be granted that the elements of uncertainty which excuse empiricism are being analysed away. Bright light is being thrown upon etiology everywhere, clinical procedure has been vastly improved, and the whole course of medicine has been along various upward paths to a plateau of logic and exactness. The awkward questions which can be put grow less numerous ; their answers become easier. And this partly because doctors have fewer gaps in their knowledge, but particularly because a right appreciation of service is growing apace, and the public questions are much better directed.

Medicine, an art as well as a science, like other arts, must live often unacclaimed, content to bear the coldness of the uninitiated, if only those who do know will welcome the attempts that are being made, and will recognise the honesty of conviction by which they are inspired. Podsnap will not do this. Podsnap was a plain man, and while he is a precious burlesque in the manner of his plainness, in essential he is with us in crowds. Such a plain man says in regard to pictorial art, 'I know nothing of pictures, but I know what I like,' and means to imply by his words that he is a shrewd critic, one that is honest and free from prejudice. He is, of course, nothing of the sort. His untrained eye is interfering with his judgments all the time, preventing him from grasping the effect of colour fully or the appeal of line accurately, and forcing him to approve only the mediocre work where the qualities are unable to give any challenge. He is best pleased with what demands least comprehension, though he would not allow this, but would rely on his admiration of the faithful rendering of some accessory to prove him to be a critic with high standards, who will not tolerate any shirking of difficulties. The art of medicine has to undergo the ordeal of such criticism from plain men, and the result is that much of the medical achievement that is praised by the public is of small account in reality, while the finer aims of medicine pass unregarded. 'I know what I want,' says the plain man; 'I want my doctor to

tell me what 's the matter and make me better. I want to get value for my money.' Nothing could appear more reasonable, and if only his wishes could be granted in all cases, he would be right to complain if they were not granted in his own. Unfortunately this precision in result can scarcely be reached. There must as yet be an average number of unprecise diagnoses, owing to scientific defaults, and these lead to tentative treatments—to say nothing of the percentage of error.

But as it is certain that in a far larger number of instances than was the case, say, fifty years ago, the precision is approached, the sense of grievance on the part of the public is ungenerous. Or it is founded upon a too hasty contemplation of the complicated relations between the doctor and the patient. A carpenter can make (let us say) a set of shelves to fit a certain corner for a certain sum of money. He acts on definite instructions as to number of shelves and thickness and material of board ; the shape of the corner dictates limits which he can ascertain with a foot-rule ; the wood is a rigid substance not varying in size or shape after it has been cut. But such carpentry does not always give satisfaction. The instructions may not have been definite enough. For example, the order may be for six shelves without specification as to their distance from each other, and the customer having intended the intervening spaces to become gradually larger from above downwards may find that the carpenter has made the spaces

equidistant. Or mahogany may have been employed instead of walnut ; or five pounds may have been charged instead of three pounds ten. The frailty of man is recognised in such situations by the rendering of a detailed estimate before the contract is entered upon, and it is an everyday experience that where this precaution has not been observed misunderstandings may arise, apart from all questions of deliberate extortion or deliberate shirking of obligation. Now let us suppose that no written evidence of the terms of the contract existed ; and, further, that the corner was not always the same shape, so that it might change its angles after measurement either on its own account or on account of a general shifting of the building ; and, further yet, that the wood was not constant, becoming circular when cut square, or thin when cut thick—in face of such fluctuations how difficult it would be for the carpenter to make the shelves with any certainty of a satisfactory result !

I do not draw, in an obvious and perhaps unnecessary little parable, any close parallel between the public and the customer, the patient and the material, or the doctor and the carpenter, but some of the questions at issue between the public and the doctor are exactly illustrated by the difficulties in which a carpenter would be placed, in the imaginary case of all his instructions being vague or open to error, and all his conditions of labour mutable. It is not humanly possible to be certain in any diagnosis, if by diagnosis we

mean an estimate of a person's exact condition of suffering. Yet no treatment can be considered as wholly appropriate, or indicated in such a way that no other treatment or modification of treatment is possible, while a single element of doubt exists in diagnosis. A shelf cannot be cut to fit a certain corner if the measurements of the corner are uncertain and unstable. A medical diagnosis has to be made by a fallible man upon evidence supplied by other fallible men, and to arrive at the sum of error with which a diagnosis may begin, all that the doctor may not himself detect has to be added to all that may be wittingly or unwittingly concealed from him by the patient or other witnesses. Temperament and environment of various sorts have to be taken into account, as well as general physical health, before this diagnosis is arrived at, and from the welter of speculations, vague or precise, a scheme of therapeutics has to be evolved, and a prognosis or guess at the future history of the disease and its result to the patient has to be given. The treatment commences, being based upon personal and traditional experience in such matters—in other words, being based upon a law of averages, with an eye to idiosyncrasies. The inexactness is obvious. Informed in a haphazard degree, and controlling tactics to some extent by theoretical considerations, the doctor's course towards his end is also inexact. The human body cannot be treated either as a test-tube or a plank ; and procedures, analogous to those which

the chemist or the cabinet-maker employs, and having their origin in knowledge gained from laboratories or workshops, when they succeed, do so by processes the whole of which are not yet known to science.

A diagnosis, a prognosis, and a plan of treatment regarded from this point of view form matters of deeper difficulty than many plain men think. This is the veritable demand upon the doctor. He is asked for the application of the general principles of medicine, for full memory of what he has himself learned in practice, and for a catholic power of drawing upon analogies, as they are furnished, and often only vaguely furnished, by sciences allied to his own. It is not surprising that the more experienced the doctor is, the more deep do the difficulties seem. Yet in the large majority of cases the doctor is right. The observation of symptoms, attention to the law of averages, and allowance for individual circumstances guide him to a correct estimate alike of the present state of the patient, of his future changes and chances, and of the best way to secure that those changes and chances shall be fortunate. But remembering that every part of the body is dependent upon all the other parts to some extent, so that at any moment a local condition may produce a general disturbance, or a general condition may modify a local manifestation—remembering these things in addition to all the other reasons for uncertainty which have been enumer-

ated, it becomes easy to see that the doctor ardently desired by Podsnap, who simply says what is wrong and how it should be righted, cannot be forthcoming in every event. When the terms of the contract cannot be arrived at, when the wood alters its shape, when the corner alters its contours, and when the ruler is not always true, the shelves run a risk of not fitting.

But in a steadily increasing number of cases medical knowledge is getting ahead of disease, and when this is more widely recognised, a public which now regards the doctor as ineffective because he cannot perform miracles, will allot him right regard for what he can do. Medicine must always present difficulties when it is considered as a science. Obviously its study is hampered by the fact that it is founded upon a group of sciences and that none of them can be held to be exactly applied. Medicine without chemistry is unthinkable, yet medical men are not necessarily great chemists. On the contrary, too rigid an adherence to the principles of chemistry may lead the physiologist into error, for the body is not a test-tube, and vital processes must not be expected to occur as they do *in vitro*. Simple principles of physics underlie anatomical action, but faulty movement cannot be remedied with any certainty by mere carpentry, for every factor in that action is susceptible to many and complicated influences. As a carpenter, as an electrician, as a botanist, as a chemist, and even as a biologist the medical man may often be doubt-

fully regarded by special workers in those callings ; but he has to rely upon the general principles laid down by these special workers, and to adapt them so that they may find a place in one flexible and ill-defined scheme. The medical practitioner has therefore two sets of critics : those who demand from him guaranteed results in individual cases, and consider that his occupation is a shifty one if he cannot meet their requirements ; and scientific men, of more than one branch, who see in him a struggler in a medley of sciences, eternally compelled to make allowances for compensating or disturbing influences which ought to be eliminated in all careful experiments. And all of the critics may have as good a general education as the medical man, who cannot, as he did in the fifteenth and sixteenth century, take up any position of superior learning with them and stifle comment by pooh-poohing, even though he knows that the detraction of his calling emanates from ignorance or misunderstanding. And so we see that the spread of education, though it has done so much for the cause of medicine, has produced a sort of dilemma for medical men. It has deprived them of any exalted platform from which they can preach by raising a large number of persons to the same educational level as the doctor. This we need not regret. But at the same time no large spread of knowledge and intelligence has resulted which would secure for the doctor general sympathy in the daily problems of his work.

Doctors are a much criticised class of citizens. They are not so universally disliked as house-agents, they are not so universally mistrusted as dairymen, but, despite the sincere and frequent eulogium which they receive for their self-sacrifice and accomplishment, they are regarded in the mass with lukewarm respect as the exponents of an unsatisfactory branch of learning ; magical skill is credited to a few, boundless admiration is expressed for the mechanical dexterity required in certain operations, but the collective efficiency of medical men was never more called in question than it is now. And never with less reason. The education of the public which has conduced so much to this state of affairs will, as time goes on, be itself the remedy. This is inevitable, the intrusion of the medical factor in so many questions of public interest compelling an increasing number of thoughtful men to solve a certain number of medical problems for themselves, or to co-operate with medical men in their solution. The sanitary service has already produced great results in this direction in England. The appointment of medical officers of health to many of the counties, to the big boroughs, and to associated groups of sanitary authorities, the whole time of these officials being given to their administrative duties, has been the means already of informing many hundreds of laymen as to the aims of and the procedure in preventive medicine. Water-borne and air-borne contamination, the segregation of infectious persons

and the value of the notification of such cases at a central bureau, the cost of hospital administration, the risks of improper housing, the terrible effects of adulterated food—these matters are now discussed all over the country, and the members of the sanitary authority and their medical officers mutually inform each other at the debates. If the authority looks to the medical officer for strictly medical guidance, the medical officer on his side has to learn to give the reason for the advice which he tenders, and so becomes familiar with the points which laymen, many of them as well educated and as capable as himself, find hard to understand.

The War has brought a wider diffusion of sanitary sense, and a quickened avowal of the public debt to medicine. The arrival of the Ministry of Health has solidified the medical status and should lead from now onward to an expansion of the medical services of the country, devised so manifestly for the public good that no cry of class preferment or priestcraft will find a loud echo. Especially will it be the duty of the Ministry of Health to see that a spirit of give-and-take prevails. There are sanitary authorities whose members show no desire to learn, and medical officers of health who have not the gift of explanation ; there are sanitary authorities whose members treat the medical officer of health as a servant only and not as an adviser, and there are medical officers of health who lose sight of the fact that they owe allegiance

to their authorities ; there are sanitary authorities whose members are corrupt, and there may be medical officers of health who play into their hands, but there is no recorded case. In spite of the fact that the relations between the sanitary authorities and the medical officers of health are not always harmonious, the Sanitary Acts are an effective instrument for the instruction of the public in preventive medicine, and are bound to have a growing influence in this same direction. The Midwives Act has taught many persons the handicap to which medical practice has to submit when weighted by every conceivable opposition to scientific principles ; and the working of this Act having proved quite unsatisfactory, a Departmental Committee appointed by the Privy Council has inquired recently into its defaults. As the shortcomings found in the Act were exactly what many medical men pointed out that they would be, the recommendations of the Committee followed the anticipated direction. This should strengthen the medical position, and prove that the professional protest against certain provisions in and omissions from the Act were uttered in no trade-union spirit, but were in accordance with public policy. Here again the medical man and the public are learning to understand each other. But no recent legislation has had so sure a tendency in this direction as the Act for the medical inspection of school children, which to some extent links the advance of the nation in education with its

physical advance. The passing of the Act was itself complete testimony that the popular wish was all in favour of a hygienic upbringing for children, and when the work is in full swing every schoolroom will be an opportunity for the display of clinical wisdom, and every educational authority will perforce have to learn something of the difficulties of medicine. Lastly, the granting of a charter of incorporation to the Medical Research Council has formed at the same time a fine recognition of medical science and a practical bond between the nation and the doctor. The pioneers of medical thought, in association with selected laymen, can through this Council meet the rulers of the country face to face.

Social movements are playing a similar part. A large number of persons are now engaged in practical philanthropy, and their labours have very generally a medical basis, compelling them to acquire knowledge of many of the circumstances which complicate the practice of medicine. The national societies for the prevention of tuberculosis and the control of venereal diseases, all schemes for the feeding of school children or for the provision of economical canteens, all movements for the help of nursing mothers or for their education and assistance in bringing up the nurslings, all the systematic visiting of the poor that is now being done with the object of instilling the principles of sanitation—the list of similar philanthropic endeavour might be lengthened—

have one certain result : they let those concerned into the secrets of many medical embarrassments. Drawing-rooms discuss these and cognate themes, such as the alleged physical deterioration of the race, heredity and Mendelism, and the arguments for and against total suppression of alcohol, and the notification of venereal disease. Such discussions sooner or later get upon a medical basis, or at any rate have to take into account the medical factor, and lead consequently to the familiarising of the public with medicine. For example, a desire to fit the Mendelian theories and expectations to real life, and to take discussions of Mendelism into realms beyond the grower of the pea and the breeder of the Andalusian fowl, will set a student of these theories tracing pedigrees in his countryside. His original object in his house-to-house visitation of the peasants will be, perchance, to find out if the blue-eyed parents have bred blue-eyed children, or if the lineage of a hammer-toed family conforms to Mendelian notation, but one outcome of his researches must be a first-hand knowledge of the shortcomings of labourers' cottages. The inevitable result of this will be a far more sympathetic and intelligent view of the work of the medical profession, and probably even a general opinion that, all things considered, doctors do not do their work badly.

When this position is reached, will the public, and will the medical profession, have anything to gain from changes in the laws of the country by

which medical practice is made strictly illegal in the hands of those without a degree or a diploma? The affirmative answer is not so clearly indicated as might be expected. For all protected industries are confessedly weak to the extent of their protection. At any rate, such changes as are made must be made not with the wish to uphold the privileges of a class, but with the intent to protect the public, and, further, with the wish to elicit who is able, not being a doctor, to render none the less service in certain directions. By as much as the public is able to appreciate the real aims of medicine, by so much will the cry of medical priestcraft be a feeble one in face of coming reforms. It is inevitable that the cry should be raised. Not only will those usually to be found in revolt against accepted principles be irritated at any further control of quackery, which they will regard as an attempt to define more strictly the limits to their freedom; but sentimental people will take the opportunity of saying that already the medical profession consists of a too protected class. These excitable folk are not numerous, but some of them are honest and none of them is silent; they will take pains to make their belief heard that medical men use their privileges to cloak their enormities, and that no legislation can be required which does not start with the abolition of the Medical Acts. This will put them out of court.

The universality of medical interests has be-

come of late years obvious to the public ; the establishment of the Ministry of Health is the solid result of the newer outlook ; and the spread of education will lead to more widely diffused sympathy with medical aims, closing the mouths which clamour in ignorance rather than in malice, in soft-heartedness rather than in accuracy, for the disestablishment of a non-existent medical priestcraft.

CHAPTER II

THE OLD-FASHIONED DOCTOR

What is Old-Fashioned?—Early and Late Greek Medicine—
Mediaeval Mysticism—Harvey and Lister—The Pre-Listerian
Leaders—Cause and Effect : the Prevention of Malaria.

THAT the calling of medicine and the growth of religions have been associated in the evolving stages of various civilisations is common knowledge, though the parallel between the medicine-man and the priest has been too closely instituted. Sir Clifford Allbutt has pointed out that there is no sign in the Homeric poems of the subordination of medicine to religion, while in many cases the priest seems to have been either an oracular medium or a court magician, without being a practical therapist.

The development of general education, coinciding with remarkable medical progress, has rendered the establishment of a medical priestcraft to-day impossible ; the absence of sanctity from medical legislation has been abundantly evident to an instructed community. Further, those who would, on high and low grounds alike, be considered the willing supporters of medical priestcraft—who would like again to see a special class of sorcerers segregated from the community and entrusted

by it with the discharge of duties on which the public safety and welfare are believed to depend—have never, of late years, manifested any feeling save total disinclination towards the assumption of class privileges. The mysteries of the leaders of medical thought have been steadily revealed to the world, and the only intrusion that is resented is the intrusion of those who criticise the medical profession without taking the trouble to use proper sources of information, or to investigate the real meaning of what they condemn. A medical man must issue orders sometimes without being called upon to explain them to all and any, for otherwise the funeral might precede the diagnosis. And, under the direction of higher powers than he himself possesses individually, namely those of the collective wisdom of medicine, he employs a ritual sometimes whose beneficial action may be clear to him, but whose logicity he cannot wholly estimate. But, as years go on, the empirical ritual wanes under experience of its unsoundness, or waxes to become scientific procedure as new discoveries point to its logical basis. In either event there is a diminution of sacerdotal character. This may be illustrated aptly by the position of the doctor in the mid-Victorian era, when medical pronouncements were delivered more oracularly.

For the last quarter of a century in the obituary notices of a good many physicians and surgeons, all of whom were well known in their day, and some of whom will hold an undoubted place in the

historic roll of medicine, the phrases have occurred that with such an one 'a type of an older school' or 'one of the last of the old-fashioned doctors' has gone, or 'a link with the past' has been snapped; but as the past is a period of unlimited retrospect, and as what is old-fashioned is the subject of opinions which themselves are the subject of changes, the meaning which it is intended to convey is not clear.

What is not old, what is old, and what is very old indeed, are matters of relativity in every department of life, but the epithet old-fashioned, as commonly used, does seem to put a term to the period of antiquity, and to suggest that, by comparison with the length of time which might have been brought into discussion, the range to be considered is brief. So when the old-fashioned doctor is spoken of, while we imply that he is one whose methods are out of immediate date, we also imply that those methods have distinct affinity with the procedures of our time. That is the significance of the familiar phrases quoted. No one would allude to Galen as old-fashioned; and when leaping the vast gulf between classical and mediæval culture, we come to Paracelsus, Linacre, and Vesalius, the epithet old-fashioned remains inapplicable. We are still too far away from them in thought as well as in date to call them old-fashioned; but it is the difference in mental approach, not the difference in the calendar, which counts, for cyclical recurrences of thought may render the oldest series

of observation pertinent to existing conditions, just as we may at any moment witness a bias of taste, turning an apron of leaves into a modish summer confection.

The position which medicine in connection with the study of natural science had reached in the time of the Ptolemies is comparable to its position in the eighteenth century—nothing between those dates counting much in a large sense. Along certain clinical paths, for this reason, it would be correct, despite what has just been said, to bring Hippocrates into line with the practice of to-day by calling him old-fashioned. In that glorious and curious stage of the world's learning, illustrated and mocked by Rabelais, many valuable therapeutic additions were made, but the scientific thinkers were less ready for the doctrine of the circulation of the blood than they would have been nearly two thousand years earlier in history. When at the end of the sixteenth century Harvey arrived with his grand discovery, he had hard work to convince his own colleagues that he was right; he might have found it easier to discuss the mechanics of the circulation with the great anatomists of Alexandria than with any of the uromaniacs and alembists who gained the ridiculing attention of the Abstractor of the Quintessence (see *Pantagruel*, Bk. 4, ch. 7). The anatomy of Vesalius was, no doubt, ahead of that of Herophilus—Vesalius is a really great figure—but, nevertheless, three hundred years before the Christian era such men

as Herophilus and Euclid would have been readier for scientific conviction of the value of Harvey's discovery than were many of Harvey's contemporaries ; for anatomy and physics had not at the earlier date been defiled by superstition or daubed with mysticism.

A thing, then, is not old-fashioned wholly by reason of its date ; rather, the old-fashioned thing may be defined as that which we accept in the main, but whose revision in detail is needed for conformity to modern standards. - Generally, therefore, it will be of a fashion which has been superseded recently. But when a great pause occurs in the pursuit of knowledge, we may get a later fructification of ideas, sown centuries earlier, and summoned accidentally to maturity, accident having checked their development. (Recall the fact that about 2000 years went by between the discovery of the burning-glass and the arrival of the microscope.) And as old ideas undergo resurrection, those who toiled to give shape to them earn promotion as old-fashioned and not oblivion as obsolete, which is an entirely different thing.

The old-fashioned doctor is one who has lost by the passage of years intimate touch with modern developments but not his philosophic insight into his calling, where he is the heir to a long lineage of experience and research. He knows that many truths when enunciated have escaped attention or been buried under irrelevancies, and he can console himself with the assurance that the essentials, to

which he holds as tenaciously as do his successors, are the things that count for the good of mankind. But every now and then he gets a shock ; for every now and then, in the drawn-out story of intellectual progress, there comes a discovery, sudden even though presaged, which revolutionises contemporary thought and changes the whole situation for the group of workers involved. A new essential is added, when, as far as the profession of medicine is concerned, all those who are unable to carry on their work in accordance with the discovery, and in association with its relations to their theory and technique, will become not so much old-fashioned as obsolete. But a man, finding himself in this plight, will be obsolete only in such measure as his previous equipment enables him, or does not enable him, to adapt the teachings of the old essentials to the differences entailed by the new essential.

The discovery of the circulation of the blood produced this situation. It rendered obsolete in their practice those who did not accept the truth ; it did not deprive them of their valuable knowledge, but it left them dependent on empiricism instead of on reasoning, when dealing with pathological conditions. And what the discovery of the circulation of the blood did for the leaders of medicine in the sixteenth century, the discoveries of Pasteur and Lister did for the leaders of medicine in the middle of the nineteenth century. And if in one way the revolution of thought produced was not

so striking, in another it was farther reaching. In the first case we were dealing with the works of a paddle-steamer, and in the second with the multifarious and involved machinery of a Dreadnought ; for the medicine of the nineteenth century during that interval of 250 years between Harvey and Lister, had inherited the learning and assimilated the knowledge of chemistry, physiology, and morphology brought to the common stock by such men as Paré, Scheele, Laennec and Hunter (especially the last), so that the system which had to be revised to suit the teachings of Lister was a scientific one, where practice had been tried and found good—in many directions it has not been changed—but where ignorance of etiology limited the therapy and shut out preventive treatment save of a speculative character.

Pasteur's work of discovery was to a great extent the expression of the achievements of chemistry used with penetrating insight into meanings and connections which had hitherto escaped notice. His range of experiment was very great, but human diseases did not at the beginning, or at any time exactly, form the objects of his investigations. Lister was an enormous discoverer quite independently of Pasteur. He had got on the right track when Pasteur's work came as a revelation to him, buttressing his ideas and indicating their working out. Pasteur both inspired and confirmed Lister, so that, sure of the soundness of his theories and convinced by rigid testing of the huge

value of his technique, he was able not only to announce, but to insist upon, the radical nature of his message.

Now a typical old-fashioned doctor, in accordance with what has been suggested earlier, would be a man a little preceding Lister, and one who was a master of their common science, and an intellectual leader, what time Lister was making good as a hospital surgeon. Such a man would be of the generation of Lister's immediate seniors and immediate teachers ; out of what this man taught, or transmitted from still older masters, Lister became the able surgeon that he was, and acquired as a pupil the base upon which he could found his researches.

Lister, as has been said, was an enormous discoverer, and as such, a very unusual man in medicine ; but he was also a typical example of the man who founds brave departures from a secure base, commencing his excursions over surveyed country. If we may judge from the easy way in which any new ' cure ' of cancer or tuberculosis can obtain a vogue, it is generally believed that in medicine fundamental discoveries may arrive at any time. Practically this does not occur. What does occur is the addition, sometimes quite dramatic and remarkable, and sometimes apparently unimportant and consequently unremarkable, of some new piece of knowledge to knowledge that has been tried and proven. But if the new discovery is a really wide-ranging one—

if it is what we have termed 'an essential'—the sum that is done is not one of addition but of multiplication; it is not the case of adding 1 to 99 and making the total 100, it is the case of adding 1 to 99, and then finding that the presence of the 1 has so activated the 99 that the total is a million instead of 100.

This is what happened to biology seventy years ago when the ardour, pertinacity and open mind of Darwin gave to the world the *Origin of Species*. Previous biological knowledge had to be viewed from a new standpoint—not all of it scrapped, for much of it was strengthened; an immeasurable vista of research was opened up, and the values of detached pieces of observation were readjusted in a surprising manner as they conformed to the new teaching. That teaching was not immediately or wholly accepted, Huxley, its famous apostle, himself making important reservations. But those who denied its main deductions, because in this or that direction the story was incomplete or faltering, became obsolete if they fought for their incredulity. They were old-fashioned if, admitting that 'there must be something in it,' they continued their researches, prepared to take Darwin's work into account where they could appreciate it.

So in medicine. Lister was born in 1827 and, reaching the ripe age of eighty-five, did not die till 1912, and if any date can be fixed for the announcement of his discoveries, which were alike the result of solid grounding, intense application, and imagin-

ation, he may be said to have delivered his message in the year 1860. For a quarter of a century he added to it and modified it, while a faithful band of adherents developed his teaching and applied it in new directions. During this time there grew up with Koch, to mention one among the most prominent, the great bacteriologists of the seventies and eighties, who revealed the immense future of preventive medicine by tracing the causes of separate infections. Quite soon the interconnection between physiology, chemistry, and the transformed pathology was arrived at, and the whole framework of a new medicine was erected.

Now consider the leaders of the medical profession at that time, that is to say, in the third quarter of the nineteenth century. Among the physicians Sir William Jenner was the most prominent, though Sir William Gull was equally well known. Among the surgeons—thinking only in terms of London—Paget, Savory, and Holmes may be mentioned as particularly noticeable. The first of these was slightly older than Lister, the last two were his contemporaries. Sir William Jenner was born in 1815, Sir William Gull in 1816, Sir James Paget in 1814, while William Savory and Timothy Holmes were born respectively in 1825 and 1826. These men were truly great physicians and truly great surgeons. They were the representatives of the best academic and clinical learning when Lister introduced the antiseptic doctrines, and when the significance of bacteriology became manifest. They

counted in the vast rise of general scientific knowledge which marked the mid-Victorian era, and the inter-play of special branches of learning was manifest to them. The teachings of Darwin and Huxley, himself a medical man, were accepted by them, and the fact that the normal relations between all organisms involve systematic biological reciprocity was plain to them.

The names of these five men are brought forward as typical exponents of medical thought at the time when Lister's work had to be taken into account—revising, as it did, all theory and all practice—not because a dozen others, with names as well or better known, and with claims as high or higher, could not have been mentioned, and not because London is the only centre from which medical light was, or is, diffused, but because those particular five represent exceptionally well the natural divisions of professional leadership. Jenner had shown the potentialities that lay in clinical observation when, unassisted by bacteriology, he had distinguished between typhus and typhoid. Gull, relying also on clinical experience, was the pathologist who first drew attention to myxoedema, calling it 'a cretinoid state supervening in adult life.' Ord and Greenwood, of more or less the same generation, extended these researches, and it was left to younger men, Victor Horsley and Professor G. R. Murray, to work out the causation and determine the treatment under which what was previously an incurable complaint has become

tractable. Sir James Paget was a surgical saint ; he held the tenets in which he was bred with devotion, and he enlarged those tenets by fervent and widening application of them for the enlightenment of those who should follow. When only a student he discovered the cause of trichinosis by the intelligent use of the microscope, and through his devotion to surgical pathology he helped to bridge the gap between Hunter and Lister.

Timothy Holmes was a scholar. He arrived in London after a brilliant career in double schools at Cambridge, took the fellowship of the Royal College of Surgeons of England without sitting for the lower diploma, and while still a junior assistant surgeon at St. George's Hospital was so confessed a scientific and literary authority that he was able to gather around him a brilliant staff of expert writers, and produce the leading *System of Surgery*. In a treatise of his own, dealing with the rupture of one of the viscera, he stated that the patient's best chance of life would follow the opening of the abdomen and the sewing up of the rent. When he wrote thus the operation was almost necessarily fatal, owing to the difficulty of preventing the patient from succumbing to general septic infection. None the less Holmes did make converts on the ground that those who escaped infection would live, and would probably form a larger percentage of survivors from the injury than those who were left to the unaided efforts of nature. Then came the Listerian teaching, and hard on it

followed the ability to open the abdomen without any necessarily fatal result to the patient. Holmes lived to perform the particular operation twenty years after he had indicated that it was the right procedure, though contra-indicated by its risks to the patient.

Savory was the most important surgeon in the country to hold out openly against the Listerian treatment, and as late as 1879, at a meeting of the British Medical Association, he declared the distrust that he was feeling. In his earlier days, at St. Bartholomew's Hospital, he was a highly successful teacher, and his care and skill at operations were notorious. He declared against Listerism when it had been largely accepted as gospel, but he was afterwards elected President of the Royal College of Surgeons of England, the fact being that, far more than he himself knew, he was in accord with the antiseptic school. The results which he brought forward of successes obtained without the aid of Lister's technique were so many proofs that by preventive care he could produce conditions where antiseptics were less needed, and to that extent he was actually ahead of the leading which he deprecated, and was pointing to the goal of asepsis.

In the regions of specialism the same position obtained. Men born in or around the thirties, who enjoyed the leading professional positions in their specialities, found themselves left behind by the rapid developments ensuing on or coincident with Lister's discoveries. In neurology Sir John

Russell Reynolds affords a typical example. The son of an Oxford scholar and grandson of a Court physician, his medical career was largely dictated by his close alliance with his brilliant teacher, Marshall Hall, the discoverer of the reflex functions of the spinal cord. Reynolds disliked the name of specialist, and indeed, while still a young man, edited a general *System of Medicine* on the pattern adopted by Holmes in his *System of Surgery*. But it is as a neurologist that Reynolds will best be known, and it is as a neurologist that he suffered from his date. He appeared at a transition period, when order was just discernible forming itself out of chaos, and he was largely responsible for that order. Five or six years before the paths of microscopical investigation had been made plain by Lockhart Clarke, Reynolds was working at the clinical aspect of diseases of the nervous system, and perfecting the knowledge and proving the surmises of Marshall Hall. Later a flood of light was to be thrown on these subjects by the philosophical lore, the research, and the clinical teachings of Hughlings Jackson, Bastian, Ferrier, Gowers and Buzzard ; but during the interval the lamp was held aloft by Reynolds, and the fact was admitted by his election to the Presidency of the Royal College of Physicians of London. He laboured at his subject, he interested as well as instructed others, he made things plain so that his successors could start with ease where he left off, and he rescued the manifestations of hysteria and

epileptoid conditions from the curious, uncanny kind of mystery in which they were shrouded, and showed them to the whole profession as simple results of causes and effect. These were great accomplishments, and Reynolds, denuded of official dignity, his prestige as a writer, his reputation as a lecturer, and his claims upon the public as a general physician, would still remain secure of his place as a pioneer in the science of medicine. But the theories and practice of prevention which followed upon Lister's work he could only acquiesce in ; he could take no part in their elucidation.

In aural surgery Sir William Dalby was similarly placed. Like Reynolds he allowed personal succession to the *clientèle* of a famous senior to dictate his speciality for him, for he became assistant to that singular man, James Hinton, who some sixty or seventy years ago had an enormous practice as an aural surgeon in Saville Row. During the twenty years between 1875 and 1895 Dalby's opinion was sought from all parts of the kingdom. He published a series of lectures on diseases and injuries of the ear, and wrote articles on the same subject in Holmes's *System of Surgery* and Quain's *Dictionary of Medicine*, while his *Short Contributions to Aural Surgery* ran through three editions, and deserved its popularity by wide practical information and pleasant writing. He was not in any sense a good operating surgeon, and found himself in an unstable plight after the enunciation of Listerian doctrines and the perfection of the

methods of administering anaesthetics. He was embarrassed as a man of science by the date of his active work. He was the main link between the periods of non-operative and operative aural work, but was not equipped for active participation in the cranial surgery made possible by Lister.

These men form a representative group, for which many names equally apposite could have been substituted, of the scientific leaders in surgery and medicine whom the introduction of Listerism immediately rendered old-fashioned, while it rested with them to adapt their personal and academic equipment to the new essential if they did not intend to become obsolete. They all gave in their adherence, four with deliberation and one unwittingly, protesting his unbelief while really showing important conformity in some regards; for Savory had recognised that sepsis must be abolished, without appreciating that to establish the cause of sepsis would make such successes as he himself had recorded not a personal affair, but an orderly technique for all.

But the position was very difficult for such men and for all who could be compared with them in wisdom or standing. They were in the van, but although they might estimate at its proper value the significance of Lister's work, it was still impossible for them in many directions to do more than speed that work by verbal advocacy. Coeval though they were with Lister, he had worked intensively and for many years with his theory before

him and his special faith within him, and when he declared his results his technique was imperfect. He could not teach by written or spoken word what his entire message was, and in frequent details he was not certain himself what it was. His contemporaries, and, for that matter, a good many of his juniors, who were unready for the great revolution even while they supported it, had in most cases not the training which would enable them to put the new doctrine to actual proof. Lister had taught himself, and was instructing the whole scientific world junior to him, but there was no one to teach the men of Lister's age or just senior to him, who had left the lecture-room and bench too long to remain flexible when the famous work at Glasgow and Edinburgh began. Physicians, and surgeons in particular—for it is to surgeons the words mostly apply—brought up in the older school, though they faced manfully the difficulties of unfamiliar procedure, and though they might be insistent upon Listerian practice in theory and word, never became great exponents of the practice ; Listerism was necessarily a thing that in its carrying out required personal experience, though in its exposition it could be accepted all along the line. Few leading surgeons, however, in the last quarter of the nineteenth century contested the truth of Listerian teaching, and those who did found no disciples. The rest, having a grand heritage of surgery behind them and a great work to do at the institutions with which they were

connected, and at the academies and corporations whose leading posts they filled, welcomed the vastly extended scope of operative treatment and preventive medicine held out.

But while they gave in adherence to the advanced school, it was inevitable that in their public utterances they should more than occasionally point out that things which they had done in their day, before the discovery of antiseptics, and things they still were doing, were confirmed by the Listerian doctrines. They laid stress upon old clinical methods to show that, although they had been without many of the facilities which the young men now possessed, they had been able, if by more haphazard methods, to make great discoveries, such as those enumerated, and to arrive clinically at many identical conclusions. And this explains to some extent why, in their biographical sketches, much stress is laid on the personalities, and occasionally the whimsicalities, of the departed leaders. They made their mark by their idiosyncrasies, and by insisting on them. Being often without a broad theory for the causation of conditions whose symptoms and significance they recognised unerringly, they trusted to individual acumen to obtain information and to individual experience for indications as to the best method of fighting the pathological foe. Then, in their teaching, they were bound to use dogma as a general reason. They would lay stress on the value of this or that drug, and the promise of this

or that procedure, because they had found them valuable in this or that case. Thus they became associated in the minds of their juniors with routines that seemed little removed from fads, and their lovable eccentricities were allowed to obscure the fact, the amazing fact, that unaided by the further knowledge that we now have of the origins of disease, they were able to treat successfully the conditions.

The following passages are from an obituary notice which appeared in the *Lancet* of the late Dr. Lloyd Roberts, who was also born in the thirties, and who continued in practice, or at any rate in touch with medicine, until the end of his more than eighty years.

‘ Any Manchester man could fill a book with tales, true and untrue, that have been told about Lloyd Roberts, and if he had died in his zenith thirty years ago, his biography would have had a large sale. Hospital work done, he was to be found by mid-day standing—always standing—compact, alert, close-cropped, by his consulting-room fire. There was a glass of milk warming in the fender, and amongst the instruments on the mantelpiece there were walnuts, which he cracked at intervals with explosive violence. These served for lunch. Then there was the bowl in which all the filthy lucre he received must be washed before he would put it in his pocket en route for the bank. Lloyd, as he was universally known (pronounced “ Lide ”), never appeared to belong to

any particular age or generation. He used to say that he was not a consultant but "a general specialist with a leaning towards women," and his definition of gynaecology as "anything either curable or lucrative" has become a classic. A born healer, it did people good merely to see him. . . . Quite free from illusions, his advice to young friends was sometimes startling. "If you want to be on the staff of a hospital, lad, pretend you're a fool till you're on it." "There are two ways of getting on; you can be clever or you can be kind; now, *you* can always be kind." "You can't alter that, so there's no use a-bothering." "Always take off your overcoat in a patient's house. If you are only there a few minutes they will feel you are not in a hurry." . . . Lloyd Roberts drove daily to the end of his life from Broughton to his rooms in St. John St., Manchester, as he had done for half a century. He always came in an old-fashioned brougham, the horse or horses being good, and many will remember the little figure with the blue serge jacket, top hat jauntily perched on back of head, and plaid rug thrown over his shoulders on cold days, peering from the centre of the back seat that he might miss nothing either on the road to the hospital, the book shop, two silversmiths' shops and a chemist's shop—his five regular places of call.'

Lloyd Roberts was a great provincial physician and gynaecologist, but modern preventive medicine arrived too late for him to do more than

admit the advances that were taking place. His old-fashioned habits and colloquialisms became the things about which his world talked, yet there was not in the country a better practitioner. He was the very type of doctor dear to the novelist. Smollett, Scott, and Reade have all drawn him, George Eliot and Trollope have been inspired by his sort.

The grand thing that happened to medicine seventy years ago was the opening up of a boundless scheme of prevention by the identification of causes. On this followed wide and special developments of treatment, but here we must be careful not to underrate the therapeutic prescience and achievements of the older men—the long historic roll of medical protagonists.

What the Listerian methods did in the first instance for surgery, bacteriology did, and is doing, for every department of healing ; it is making prevention the object of the doctor.

In medicine pure the story of malaria forms a very good example of this. In the first years of the Victorian era there was published a remarkably eloquent treatise on medicine by Sir Thomas Watson. Watson, one of the numerous scholars who have adorned St. John's College, Cambridge, was physician to King's College Hospital and was appointed Professor of Medicine in the school in 1836. He was elected President of the Royal College of Physicians of London in 1862 and held office for five years. Between these dates he

published a series of clinical lectures, covering the whole practice of medicine, which he had delivered at the medical school. A section of this admirable book was devoted to malaria, in those days believed to be a miasmatic disease ; but there is not a word in Watson's essay, if we read it alongside with the latest treatise on malaria, that is not informing as to symptomatology and sound as to treatment. The types of malaria are carefully separated, as, indeed, they had been separated by Hippocrates, though modern work has here enabled classification to be much more useful as well as elaborate ; the phenomena of the attacks are minutely described ; the historical, geographical, and climatic information is full and derived from unquestionable sources ; and the treatment of the sick is sound and based on a practical knowledge of the qualities of quinine. But the cause of the spread of malaria being unknown—though something very near the truth had been guessed at more than once—not a word could be said about prevention. No doubt, with the famous revelation of Manson and Ross, treatment of the individual cases has advanced in many ways, but the world-importance of their contribution to medicine lies in the fact that a disease, supposed to owe its origin and spread to telluric and climatic circumstances lying beyond the limits of human activity, is found to be preventable now that we know its cause. The great difference between the teaching of Hippocrates and Watson and the teaching of to-day is that

we now know the etiology, while with them it was a matter of speculation. With regard to treatment, Hippocrates suggested none, and Sir Thomas Watson, with limitations, that which we now follow, but he could give only empiric reasons for his advice. The periodicity of the paroxysms eluded exact demonstration until the microscope began to play its effective part and until every pathologist was aware of the existence of blood parasites. But for years physicians used much speculation upon the hot and cold phenomena in relation to the etiology of malaria, and in their guesses were themselves now hot and now cold. Those who attributed the sequence to an unexplained fermentation of the blood may be described as lukewarm ; those who thought the phenomena were due to a general law of the universe by which night follows day, rain follows drought, and winter summer, were very cold ; while the one or two who hazarded the guess that insects might carry the infection were very warm indeed. These philosophers, if they had remembered that most occurrences in nature have predisposing or concomitant reasons as well as one predominating cause, might have laid down for certain the rules for prevention of malaria without having microscopic proof of their wisdom. Lancisi, for example, asked : ‘ *Cur juxta paludes noctu praesertim indormientes magis quam vigilantes laedantur ?* ’ He and others knew that the victims of malaria were those who slept out in the neighbourhood

of certain damp but drying areas, and if they had put this knowledge alongside of the observation that certain insects would breed well in such areas, and would bite at night, the discovery of the peccant mosquito might have been made years ago. But the notion of a mysterious miasma had too forceful an appeal.

The belief that disease is something dispensed as a punishment to a sinning world by an outraged God was the main reason why the medical man looked no further than a miasma for the cause of malaria. Undoubtedly religious superstition has always been ready to impute impiety or blasphemy to research work. An Italian surgeon at the end of the sixteenth century invented a method for the replacing of noses, these organs at that time being not infrequently destroyed by accidents of war, and being sometimes removed by legal mutilation. Tagliacozzi's method, which contains the basis of much of the cosmetic surgery performed on behalf of sufferers in the recent War, was severely reprobated at the time of its invention by the strict religionists on the ground that he was tampering with God's handiwork ; nor must we find the view too ridiculous when we recall that in the nineteenth century Sir James Simpson was reproved from pulpits for employing the new drug, chloroform, to alleviate the pangs of childbirth, because St. John had said, ' a woman when she is in travail hath sorrow.' Also, if religion did impede the course of medicine, the religious houses, by acting

as the only centres of learning, must have furthered its aims. In the case of malaria, for example, the Church was largely responsible for the popularisation of what still remains the standard remedy. There are several versions of the story how cinchona was introduced into Europe, but that directly associated with the Spanish viceroy's lady, the Countess de Cinchon, who was said to have been cured of the fever by the drug at Lima about the year 1638, accounts most plausibly for the three popular names of the remedy—cinchona, Peruvian bark, and Jesuit's bark. The latter appellation was derived from the fact that, being a Catholic, the Countess either sold or gave the secret of the cure to the Jesuits, through whom civilisation obtained its benefits.

The old-fashioned doctor is the man who has learned *what* to do without, sometimes, at any rate, the opportunity of learning *why* he does it. It is his devotion and sagacity that we should admire; these virtues remain and are aggravated by any gaps in his technique.

Medicine is a torch race, to quote Moore's jingle :

' 'Tis like a torch race such as they
Of Greece performed in ages gone,
When the fleet youths, in long array,
Passed the bright torch triumphant on.'

But they who pass on the torch in the team race of medicine do not necessarily drop out of the race. Out-paced they will be—that is in the scheme of the race; but for some time after they have

handed over the torch they can keep in touch with their successors and help them to victory by encouragement and counsel, advising them to spare their breath down such and such an incline, or warning them out of personal experience that the flame will falter if the torch be not carried at the right angle.

CHAPTER III

MEDICINE IN FICTION

The Novelist and the Medical Profession—The Treatment of Disease in Fiction—The Popularity of Phthisis and Malaria—Charles Brockden Brown—Dickens and Thackeray on Fever—An Unsuccessful Competition.

THE references to fiction which have already been made render a confession of frequent and promiscuous novel reading unnecessary, nor does the habit need apology save in one direction. It is sadly apparent that the novelists referred to are all old friends; their claims have been so engrossing that I have made no new friends with the same intimacy.

The connection between physic and fiction has many bearings. For nearly two hundred years in this country contemporary life has been recorded in stories—some good, some not so good, but the literary value of particular novels is not in question. In these stories the medical profession is described at different epochs, and we can gather the esteem in which it has been held by society during its evolution from empiricism to science. Further, medical episodes are employed in the machinery of many narratives, and from these can be gauged to some extent how far medical technique is under-

stood by those who would interpret it for the information of the public.

That all subjects are the artist's province has been proclaimed over and over again, but there are some provinces which, as history just now has shown, and is showing, may belong to owners who cannot rule them. Medicine is such in the novelist's hand. Allowed to run its own extravagant course, the medical episode is thoroughly helpful to the story-teller; coerce that episode in the most reasonable manner, ask it to conform in its salient features to true pathology, and often it becomes of less use to the narrative. This is the reason why so much fun has been expended over the medicine of fiction, and it is also the reason why some of this fun has been cheap. Critical persons have taken it for granted that whatever is undisciplined is wrong—a harsh and stupid doctrine to apply to feats of imagination.

The proper attitude to be assumed in respect of the treatment of medicine in fiction seems to be fairly well defined. Where the author has in any way insisted on the accuracy of his science—where he writes as one having authority, and calls all men to witness, either in so many words or by his general assumptions, that he is a learned and sound expositor—it is certainly fair that he should be reproached for any lapses from the truth; but where the author has introduced a medical episode for the mere sake of helping his story along, it is not necessarily sound criticism to blame him for

faultiness of detail. Imagine calling Balzac to order because the murder of Maulincour by the terrible Ferragus is not to be explained by text-books on toxicology. The author may be true to the scheme of his story even while he is untrue to the teaching of the medical text-books. This is how it comes about that some of our very best novels contain bad medicine, while some of the silliest contain good medicine. Whether the author of the former is to be praised as an artistic writer, or the author of the latter is to be credited with valuable accuracy, depends upon the rules of criticism adopted ; and these ought to be applied with appreciation of what the aim of the author has been. If the author has plumed himself upon the preciseness of his medical knowledge, he should be judged by the correctness of his display ; if he has made the action of his story depend upon a chain of medical circumstances in such a way that unless the chain holds the story collapses, he invites us to test that chain link by link. But such a use of medicine in fiction is rare ; as a rule it is no great contradiction of the author's pretences if a mistake in therapeutic or pathological detail occurs. And it makes small difference to the position of medicine in the public eye that signs rightly attributable to one poison are transferred by a novelist to another, that the symptoms of a tropical disease are burlesqued or the terrors of a fever magnified. The reader knows that the therapeutics in such matters will be in real life under the conduct of

those who know, and his feelings towards the medical profession are not altered one way or another by details in respect of which accuracy can never be his practical concern.

But when medicine enters in a larger manner into a story, and when the relations of the medical profession to the public are presumably expounded in a book, it is very important, both to the medical profession and to the public, that the author should be accurate. And he generally is nothing of the kind. The novelist never seems to have the slightest knowledge of the professional medical life. He is ready enough to credit the members of the medical profession with many shining virtues and equally ready to darken their reputation with calumny, the unfortunate result being to leave upon the public mind the impression that the average medical man is not an average member of society. The idea which the public might well derive from reading many novels is that to call in a doctor is an extraordinarily fluky proceeding, as the medical profession is divided sharply into heroes and knaves. The heroes lead a strenuous life, succouring the sick in desperate circumstances and refusing fees ; operating at the briefest notice when a hair's breadth to the right or left in the making of an incision would be certain death to the patient. The knaves murder, cozen, and keep bogus sanatoriums. They vivisect for pleasure, their humanity is dead within their breasts, and they pass existences that are a standing reproach to the

law of the land. Now undoubtedly either sort of description of the medical life, whether the roseate glow of eulogy or the green cast of detraction is employed, does no good to any one. As far as the public is concerned, it cannot be useful that they should have doubts whether their doctor is a saint or a sinner, a knave or a hero. Medical men, for their part, may smile at errors in the medical details of novels, but they are uneasy under indiscriminate laudation of the nobility of their careers, and grow positively restive at some of the allegations concerning their criminal habits.

The time has surely arrived when we may expect that the novelist who aims at recording contemporary manners will take the trouble to ascertain what are the professional standards in medicine, what is the usual course of the successful man, and what the machinery, legal and ethical, which confines the medical career within certain bounds. The part which his hospital work plays in the life of the consultant physician and surgeon certainly varies, but it varies only within limits, and those could be readily ascertained by the novelist, who too frequently seems to confuse the honorary staff of the charity with the resident officers of the same institution. There are general hospitals which may have medical schools attached to them, and special hospitals which, not possessing the range of material necessary for use in clinical training, only play an ancillary rôle in medical education. These points ought to be remembered, even though

the picture of the great specialist in brain disease, passing from bed to bed in his world-famous ward, surrounded by a crowd of enthusiastic students, to whom he discourses with elegant brutality, has to be suppressed. Intelligent *internes*, again, do not reverse the treatment of their superiors, and, by saving life with brilliant unorthodoxy, succeed at once to lucrative practices in Harley Street ; no great consulting position was ever won in this way. Nurses in hospitals have to do as they are told ; the devoted young woman who remains by a sufferer's pillow hour after hour and day after day till she wins a hand-to-hand fight with fate and secures by her importunity the life of her patient—she is a figment ; for in the hospitals all nurses go to their meals and their beds at stated times. Heaven knows, the work of both house-surgeons and hospital nurses is hard enough : the time allotted for their meals is scant, the hours of their labour are long, and much of the routine of their work is hard—physically as well as mentally hard. They do not deserve ridicule, and it makes them ridiculous to describe their share in the organisation of a hospital so untruthfully as has been done ; while the misstatements give the public a totally wrong view of institutions which, with extreme difficulty, derive their support from the public purse. The callousness of hospital nurses has more than once formed the subject of newspaper comment, and the views of the critics of hospital dispensation have been, I make no doubt, largely

derived from the impressions of patients who, fooled by fiction, have thought that a broken leg or a scalp-wound would entitle the sufferer to the exclusive possession night and day of a soft-voiced ministering angel, and who have resented their particular angel going to her tea.

If the harm that may be done by the burlesque descriptions of hospital life which have appeared in various popular novels is more easily realised, I am not sure that it is greater than the harm done by the perpetual suggestion that the venal or criminal doctor is easy to find. Mr. Matthew Finsbury, the seal collector, who, as set out in Stevenson's best manner, took deep thought on this point, came to an opposite conclusion ; yet there makes a regular appearance in fiction the doctor who is ready at a price to violate every article of the Decalogue separately or in permutation and combination. Why is this? It is because a large number of the public, who are sufficiently well educated to perceive in some sense the qualities good and bad in the sensational novel, are still in ignorance as to the aims of medicine, scientific and sociological. They still believe, when the novelist bids them, that a medical student is necessarily an expert toxicologist ; that to immure the sane subject in a lunatic asylum is a safe and simple proceeding ; that nurses are often the mistresses of doctors ; that in many diseases the withholding of a dose or an injection will inevitably cause death (these latter two notions pave the way

to frequent situations) ; and that familiarity with sorrow produces greed and callousness. It is suggested to intending novelists that these things are all untrue ; that the very occasional episodes on which statements of the sort are grounded do not warrant the general conclusions ; that the time has come when they should not be said ; and, further, that it will be good business—if a vulgar appeal to profits may be pardoned—to forgo certain easy effects that can be obtained by misrepresenting medicine. Scott, George Eliot and Stevenson spoke nobly on the side of the medical profession ; I believe that modern novelists who follow them here will not go unrewarded. Good novelists do not wish always to write for the ignorant, and the ignorant are, or soon will be, the only persons to be thrilled by patent falsehoods. In them the slanders confirm wrong impressions and so do harm.

The more usual employment of medicine in fiction takes no count of professional questions, but consists of the narration of a medical episode in the story. For one book which alludes to the profession of medicine as a profession, there are twenty in which a medical event occurs, being introduced not to illustrate the habits of the profession of medicine, but to fulfil the exigencies of the plot. Some of these instances of the use of medicine are thoroughly good ; some, a smaller quantity, are bad ; for the most part they display the partial knowledge of a writer who has got up

his subject conscientiously, and who lays unnecessary stress upon a symptom without knowing the secondary part which that symptom may play in diagnosis or as an indication for treatment. Sometimes the author shows real pathological grip, while often the effect of a disease upon the behaviour and morals of its victim is well portrayed.

Most of the instances of such employment of medicine in fiction fall into two general classes: (1) where the disease or accident is an episode, and (2) where the disease is a part of the drawing of some character whose attitude towards life is swayed by the condition. This is a rough division, and corresponds with the equally rough division into two classes of the science of medicine, which has to be made in all medical practice and literature, these two classes being (1) medicine proper—the *innere Medizin* of the German, and (2) surgery. It will be found that among the invalids of fiction the purely medical cases will be described mainly from a temperamental point of view, surgical cases being introduced as episodes. And we see at once how natural it is that poisoning should have attractions for the novelist. Poisoning cases, while really belonging to the class of violent accident, being in this way comparable to a surgical catastrophe, appear to belong to the class of medicine proper; that is to say, that while they are as truly casualties as the sprained ankle of the heroine or the sword wound of the hero, they usually pretend to be manifestations of systemic

disease, producing the symptoms of typhoid fever, of meningitis, of epilepsy, and so on. The novelist who uses the crime of poisoning is able to defend any obscurity of his own by reference to the notorious obscurity of such cases in real life, and this is a consoling feeling for a conscientious writer. I think we now have a rough guide for the appraisement of the use of medicine in fiction.

Where the episode plays no other part in the narrative than to assist in the evolution of the plot, it cannot matter greatly whether the details are correct, and their incorrectness may prove a positive virtue. It is general belief that crime, as it appears at the cinema, leads to imitation; if this be so, it is well that the episodes in sensational novels should not form accurate recipes for murder.

To cavil at mistakes in the novelist's surgery is often unfair, as they are usually mistakes in an episode not necessarily affecting the story as a whole; but we may have to ask from the author, if his book is to be credible and symmetrical, that his 'internal medicine' should be accurate, for the behaviour of his sick characters ought to be in accordance with their diseases. I am making, therefore, no comments upon the surgery of the novelist, because, in the instances that occur to me most readily, inaccuracy does not much matter—it does no public harm, does not spoil the tale, and should not be made the subject of serious discussion. When a well-known writer, one of the 'best-sellers,' mixed up in his surgical allusions

an organ of reproduction with one of excretion, he did not make his story less probable, though, incidentally, few things could have done this. But the use of medicine proper in fiction may call for more serious consideration.

In medicine proper, most of the diseases whose name is not too difficult to spell or too cacophonous to pronounce, whose associations are not revolting, and whose details are in the least familiar or are capable of explanation, have been used by storytellers of different grades. It is obvious that no attempt can be made to review such a mass of material, and I propose only to illustrate the uses of medicine in fiction by calling to mind the way in which certain common diseases have been employed in the course of their art by great or successful writers.

The incidence of an epidemic is a social occasion of enormous importance ; it cannot be viewed from the medical side alone, but must be regarded by every conscientious writer as having public significance. It seems to me clumsy to introduce an epidemic into a novel to kill off—say—one person, but if the epidemic is well and truthfully described, an allegation of bad art cannot be lightly made. There are well-known and justly popular novels into which battles have been introduced merely, it would seem, to wound a hero ; while dams have burst and villages been submerged to afford some one in a lower valley a chance of distinction. But we demand that the battle of

fiction should follow the lines of the battle of fact ; and that the flood should run down the valley and not up the mountain. About such fundamentals we feel that a novelist should be right. The public is not familiar with epidemiology as it is with popular history and elementary physics, and has not the same sense, therefore, of the necessity for accuracy, but this does not absolve the novelist from care. It is a laudable fact that many novelists have taken special trouble over their descriptions of epidemics.

It is the methods employed in fiction for dealing with internal medicine that may call for criticism. In the groundwork the novelist is sure to be weak, and this is only what might be expected. Disquisitions on general pathology have no obvious place in fiction. The story of inflammation, the circumstances of the destruction and the repair of tissues, the conditions which actuate hypertrophy, dystrophy and atrophy, the relations of micro-organisms to disease, haemolysis, the precipitins, the opsonins and so forth, may become material for the novelist in the future ; indeed, we may be certain that sooner or later books will be written for popular use in which the problems of general pathology will be put out in such popular ways as may return the best reward in cash. But that will be a great change from any employment of medicine in fiction that we have seen as yet. When Sir Rider Haggard wrote his brilliant defence of vaccination, *Dr. Therne*, in the guise of a

novel, he made himself aware of the arguments in favour of prophylactic inoculation and produced a story of episode. He did not discuss in his pages the pathology of vaccination. If he had done so he would have been incomprehensible to those whom he was addressing. I can quite see that in the future, perhaps in the near future, there may be so large a class of readers possessing a scientific equipment, that a novelist who enters upon a pathological disquisition will be as practical in his writing as a novelist is nowadays who discusses at first hand, or through the medium of his characters, psychological and theological subtleties, the intestines of a motor-car, or the mechanics of a flying-machine. For the present, however, general pathology can hardly enter into the schemes of any novelist's work.

But most particular diseases have been illustrated by novelists, and most accidents and surgical catastrophes. Death by all conceivable forms of violence has fallen in their pages upon all conceivable sort of people, but in a proportion of cases so vast that the remainder is negligible, the surgical episode is a mere detail in the story—a character has to be checked in his career, or removed from the scene, and physical violence of some kind or another, the result of accident or of crime, is employed to give probability to the modifications of the drama. Accuracy, however commendable, is not necessary in an episode like this ; it may be

preferable, but sometimes the dramatic force is increased by a little mendacity.

A general disease much used by novelists is malaria. Sometimes malaria removes an individual, and in that case the accuracy with which symptoms are rendered is not of prime concern ; sometimes we are told how the disease falls upon populations, and here it is of importance that the medical picture should be correct. Several writers of fiction have dealt with malaria under different names. Guiltless of any knowledge of the part played by the mosquito in the spread of the disease, they have none the less been able to show with accuracy the probable environment of a malarious population, and the effects upon physique and morale of what the Anglo-Indian until recently called ' a touch of fever.' The episode of the Valley of Eden in *Martin Chuzzlewit*, drawn with exuberant picturesqueness and biting humour as it is, is on the whole an accurate description of a malarious community. There never has been any place quite as Dickens portrayed the Valley of Eden ; he has used the same almost unbounded exaggeration in bringing this gruesome strand before us that he employed in drawing elaborate personages, for no one was ever quite so infernally impish as Quilp, so gorgeously benevolent as the Cheeryble Brothers, so silly as Mr. Dombey, or such a beast as Uriah Heep. But these personages are sublimated types, and are accepted as such ; and in the same way Eden may be accepted as a sub-

limited type of a malarious settlement, and so pass as accurate enough. The malaria which attacked the inhabitants of this valley was of a continuous form, but when they got rid of it they remained in the same place some three months more without experiencing a recurrence, nor do we learn of any later manifestation of symptoms on arrival in England. It is easy enough to criticise the Eden episode in detail, but in general spirit it is a masterly piece of writing, accurate enough, and displaying in a vivid manner the hopelessness which falls upon a people that abides, and strives to live, under the shadow of death. The effect of his illness upon Martin plays a definite part in the alteration of his character, which is very useful for the story, but medical experience does not support the view that illness often leaves a chastening effect upon man; seldom indeed is it that any one is rendered less selfish thereby. Contrast with this the use of malaria in two popular novels, where the disease is employed to remove the heroines—and merely to remove them. I refer to Henry James's *Daisy Miller* and Marion Crawford's *Mr. Isaacs*. Daisy Miller was a doomed character from the start. It was impossible not to feel that this gay and clever young rebel would become an admirably picturesque and pathetic person if she died quickly and neatly, and Henry James, most learned of all novelists in seeing when such effects can be obtained, kills her in the space of a week of 'Roman fever.' Her attack was without intermission, ap-

parently without complications, but with delirium from the beginning. Now this is not a very convincing clinical picture. Katharine Westonhaugh, the heroine of *Mr. Isaacs*, died of 'Indian jungle fever' in much the same space of time—that is, in a week or ten days. She speaks clearly and easily from first to last, but has no recognisable sort of fever. It is my belief that Marion Crawford intended to kill her by an accident in the hunt which preceded her illness, but, seeing how very dignified a figure she had cut throughout the book, he felt that mauling by a tiger was an untidy way of disposing of her. There is a form of malaria, designated by the French *accès pernicieux*, which may end either in delirium and coma, or in collapse, running its fatal course in a few days. These cases occur in Africa, not India, for the most part; but I find such criticism laboured. In all three cases malaria is well handled; in the first it appears as an epidemic under a picturesque guise, in the others as a piece of narrative machinery.

Cholera and plague both put in appearances in novels. There are two well-known descriptions of cholera in popular fiction. The best is Charles Kingsley's account, in *Two Years Ago*, of the cholera of 1854 as it fell upon a poor community. Aberalva is a picturesque fishing village in the west country, the amenities of which are much disturbed by the sudden advent from the sea of Tom Thurnall, an energetic medical man who has been wrecked off the coast. Having had experience of cholera

in various out-of-the-way places, he makes up his mind that Aberalva will be visited in the course of the coming summer. Kingsley gives a very good account of the dirt of the place, of the pig-headedness of the people, and of the way in which Thurnall rubbed them all the wrong way by poking about in their backyards and showing them ordinary water animalculae under the microscope. The cholera does come, and a flamboyant account of the progress of the disease and the mixture of panic and obstinacy with which it was received will be found in this admirable novel. It is cheering to think that the Ministry of Health no longer deserves the fun which Kingsley poked at the General Board of Health of 1854 ; nor is there any longer truth in Kingsley's dictum that ' Local Government signifies in plain English, leaving a few to destroy themselves and the many, by the unchecked exercise of the virtues of pride and ignorance, stupidity and stinginess.' The work of Simon, Chadwick, and Buchanan was already beginning to bear fruit when these bitter words were written, but Kingsley was an emotional man, used to creating valuable effects by powerful appeals which came from his heart and not from his reason, and there is no doubt that he believed that the message which he was delivering was sorely needed. The modern novel which essays to arraign the public health dispensation of this country will require more accurate knowledge than Kingsley possessed if it is to carry any weight,

while the abuse will have to be levelled at the public rather than at the Ministry of Health. And even so this abuse will have to be discreetly applied, for many communities are nowadays very wide-awake to what can be done for them by a well administered sanitary service, as is shown by what happened in Suffolk in the autumn of 1910. An outbreak of pneumonic plague among the population was found to be due to an epizootic attacking the rodents in the district, and inquiry pointed to two ominous things—first, that there had been probably other human cases than the four fatalities which first attracted the attention of the health authorities ; and second, that the area of the epizootic was ill-defined, and that conditions favoured the spread of plague among rats. There was no panic ; natural and reasonable apprehension led to active co-operation between the population and the local sanitary authorities, who were advised throughout by the Local Government Board. It was some time before it was possible to say that all danger of a spread of the disease among the human population had disappeared, but the steps needed to prevent developments were taken, and proved successful.

The terrific mortality and unrelenting march of an epidemic of plague has made this disease a favourite one with writers of romance from Homer and Sophocles, through Boccaccio, down to to-day. Everybody will remember the picturesque and effective account of the Great Plague of London in Harrison Ainsworth's *Old St. Paul's*. Ains-

worth was a conscientious author, and clearly had consulted the authorities before writing his description. In the preface to the first edition of his work he says that he has followed closely a rare narrative, which he attributed to Defoe, entitled *Preparations against the Plague both of Soul and Body*. I have never seen the book, but all the historical background to *Old St. Paul's* can be found in Defoe's *Diary of the Plague*. The maniacal behaviour of Solomon Eagle, the murderous inclinations of some of the plague-nurses, the roaring trade done by quacks, the blasphemous orgies of the half-terrified, half-defiant loose-livers—all this, which is so effective in Ainsworth's romance, finds a place in the *Diary*, and, moreover, is all historically sound. Defoe's consummate and particular literary skill led him to tell the story of the plague as though he had been an eye-witness, when in truth he was only six years old in the terrible year of its occurrence. But his chronicle is essentially accurate, for he had access to genuine diaries of the time, to Dr. Hodges's *Loimologia*, to Vincent's *God's Terrible Voice in the City*, and notably to the *Collection of the Bills of Mortality for 1665*; while seniors in his family or among his acquaintances would have certainly narrated their personal experiences before him. The famous *Diary* has patent exaggerations, and not being written until Defoe was sixty years of age, he could not refer doubtful passages to those who had given him personal information; but the story of the

epidemic is trustworthy, and Ainsworth, by tracking Defoe closely, achieved success.

The account of one of the several and severe epidemics of plague which in the seventeenth century fell on Naples, as given in *John Inglesant*, is a brilliant piece of writing. Here we have the appalling state of a plague-stricken city standing out in contrast with the beauty of the South Italian climate and the wonderful colour of the sea and the sky. The dead are lying in the streets, which are still decorated for some popular festival ; business is at a stand, for the houses are full of infection, but a terrible restlessness drives every lazy Neapolitan here and there. This restlessness has often been noticeable in epidemics, and nowhere, perhaps, would it be more obvious than among an unstable superstitious people like that of Southern Italy. In London during the Great Plague this restlessness was counteracted by the drastic orders confining the inhabitants of a plague-stricken house to that house—orders which terribly added to the horror and destructiveness of the disease. Another novelist who has used an epidemic of plague with striking success is that singular writer, Charles Brockden Brown, who never could have been very readable, and who has now, I think, fallen into complete oblivion. But there is much in Brown that is fine. He had a great eye for a situation, a thorough and wholesome interest in psychological problems, and a powerful as well as a cultivated pen. In many

ways he deserves better of posterity than the scant reference which he obtains in such phrases as ' the successful copyist of Godwin ' or ' the father of the American novel.' Brown was born in Philadelphia in 1771, and was twenty-two years old when the plague fell upon that city. He had therefore been an eyewitness of the scenes which he describes in his best-known novel, *Arthur Mervyn*, and there are two or three chapters in this book which bring home to the imagination of the dullest what a plague-smitten community really suffers. Plague has been well treated by novelists.

In regional diseases it is natural that little use should be made of disorders of the stomach, liver, kidney, and spleen. Their manifestations would not make polite reading, so the novelists seldom hit below the belt. Many dyspeptics cross the novelist's stage, but the victims of indigestion are nearly always subsidiary characters furnishing food for ridicule. Disease of the liver is rarely alluded to, save as a sort of label for retired Indian civilians or half-pay colonels, where the disease has become a convention, no more like any pathological entity than the effigy on a Macedonian coin resembles a horse. Diseases of the spleen are unmentioned as such, and I have not come across any description of malaria where the association of the disease with splenic symptoms has been mentioned. There lies here an opportunity for the novelist, as the malarious spleen is a cause of sudden death sometimes from a trivial accident, and this

method of killing off a superfluous Indian villain has, as far as I know, not been exploited. A certain proportion of the fits that terminate bad careers in novels are presumably renal in origin, and in this way novelists do not omit to mention disorders of the kidney, though they do so unwittingly. The heart disease of fiction is usually angina pectoris. Diseases of the lungs are very commonly introduced; indeed, the disease, *par excellence*, of fiction is phthisis. It is unusual for the symptoms either of heart disease or phthisis to be particularly well described, but there are one or two notable exceptions to this rule.

Heart disease almost always plays the part of an accident, that is, it intervenes suddenly in the course of a narrative, and incapacitates or cancels characters whose activity is embarrassing. Its typical employment is exemplified in such novels as *The Moonstone*, and perhaps *Armada*—and would that more such novels were written nowadays. In both instances the victims were dear ladies, no longer young, who had to be removed by something not painful, not revolting, and out of deference to their breeding and gentility, not vulgar. There is a story of a teacher and a mother which is not new but in this connection may bear repeating. The teacher, in response to an enlightened view of her duties, taught her class in simple terms some simple things about the physiology of their bodies. Later in the day the mother of one of the pupils arrived to request the

teacher not to instruct her daughter in regard to her insides, 'for it frightens the child—besides, it's rude.' Out of respect, I imagine, for public delicacy of this sort arose the feeling that heart disease was one of the few really refined ways in which nice old people might die, just as phthisis was the proper way for good young people to finish. The diaphragm was the line of demarcation; and all characters born in a good social position, or drawn for us in a sympathetic manner, had to be afflicted above that line. Thus heart and lung disease are frequently employed.

The heart disease of fiction is commonly a polite sort of disease, and has few or no premonitory symptoms; it is found out suddenly by the doctor, who issues the warning that at any moment the victim may fall down dead; and sure enough, at the right moment, down he or she falls. Such patients have no dropsies or unpleasant complications, though they may suffer from anginous spasms. It is a purely novel-writer's disease, and is preluded almost invariably with that visit to the doctor to receive the unexpected verdict which has been described over and over again in novels, but which for obvious reasons happens but rarely in real life. One novel, however, occurs to my mind in which a definite description of cardiac disease is given accurately—*Une Vie*, by Guy de Maupassant. Here, it may be remembered, the unlucky heroine's mother, the Baroness Adélaïde les Perthuis des Vauds, has a heart disease to

which she alludes frequently as 'mon hypertrophie,' and the symptoms of hypertrophy with subsequent dilatation of the heart are given perfectly. The baroness is a heavy and short-winded woman, who slept stertorously, walked with difficulty, and sat down every few paces during her self-imposed tasks of exercise. We learn when the book opens that she has suffered from cardiac symptoms for some ten years, so that it is perfectly right that the failure of the heart to do its work should have begun. And with the physical decay has also arrived the inevitable moral feebleness of a starved brain. Forced to lead the life of a half-suffocated cabbage, the unfortunate woman spends her time weeping over sentimental romances and re-reading the letters which later reveal her to her daughter as the possessor of a poor past. On the occasion of her daughter's wedding she deposes to her husband the delicate task of breaking to their child the meaning of the responsibilities of marriage, with the result that the young couple make a horrible start in their joint life. The next year sees the end of her resistance to her disease; compensation fails, she becomes dropsical, is unable to walk unsupported, is troubled with dyspnoea, ages in six months more than she had done in the preceding ten years; falls into unconsciousness, and dies. This is a vivid pathological picture.

Phthisis has been frequently used to account for the disappearance from the scene of young women

in an agreeable and sometimes in a very prompt manner. It is in the older novels always fatal and usually hereditary, and we must remember here that opposite views are the outcome of completely modern work. In hereditary cases the fatal seeds germinate on exposure to a draught in a ball-room, or symptoms supervene upon amatory disappointment—two perfectly correct observations as far as they go.

One of the most carefully drawn descriptions of phthisis is in *The Portrait of a Lady*, where Ralph Tuckett in the course of a very long story gradually dies of a chronic form of the disease. It was inevitable that when Henry James elected to make his male protagonist a pulmonary subject he should present to us a correct picture, but the accuracy is superficial. Ralph Tuckett comes on the scene at the beginning of the book already in broken health, and his appearance, as drawn for us, is an admirable etching of admitted invalidism. The delicacy, the frailty, the licence in dress and manner are all indicated with sure strokes, and we have before us a man who has established the right by his physical disabilities to lounge, even to slouch, and to wear what is most comfortable to him ; at the same time the slow and gentle nature of his malady makes him no distressing companion. True to his oft-enunciated theory of how a story should be told, Henry James never tells us himself what Ralph Tuckett's feelings were ; we are left to ascertain them from the sick

man's actions or from the way in which he strikes other people. The most luminous account of these feelings is given by Ralph's father. This old and sickly man says of his son, who has when the story opens been an invalid for three years: 'It affects his mind and colours his way of looking at things; he seems to feel as if he had never had a chance. But it's almost entirely theoretical, you know; it doesn't seem to affect his spirits. I have hardly ever seen him when he isn't cheerful.' This, taken with the description of Ralph's appearance, makes up a good clinical picture of the chronic phthisical subject in the days when practical physicians ordered rest and wintering abroad for the condition, though the temperament revealed by the patient is more often associated with acute than with chronic cases. Ralph had his bad days and his good days, his bad seasons and his good seasons; but throughout a long book he goes steadily downhill, as he would have done in real life—the life of the seventies, before bacteriology and modern therapeutics had changed our views and our proceedings. From the modern point of view Ralph's illness is no longer very probable, for medical men would have dealt more actively, and probably quite successfully, with so chronic a form of the disease occurring in a wealthy subject able to carry out any prescribed routine. He had been ill three years seriously when the book opens. Some years—two or three—later, we find him starting to winter in Corfu. He remained there a

year, and on his return he had become 'an accidental cohesion of relaxed angles . . . he shambled and stumbled and shuffled in a manner that denoted great physical helplessness.' Two years and a half later than this he is described as very far gone indeed, and another season goes by before the actual end comes. The story cannot get on without him, for while it is every whit as much Ralph's portrait that is being drawn as the heroine's, Henry James wants the help of Ralph in depicting Claire. Now Claire's adventures are complicated, and take some years to come to any head, so that Ralph is kept an improbable time, about ten years, as a dying man. Otherwise he is a good bedside study.

Compare all this with the abrupt tuberculosis which struck down David Copperfield's child-wife, and we get a very good example of the other way of using medicine, *i.e.* as an episode to help the plot and not with any desire either to study the course of a disease or its influence upon character. Henry James gives us a cause of the disease which would have been accepted at the date when the book was written, the progress, the exacerbations, and the conclusion are all supplied in a logical manner, the actions and moods of the subject being made to fit well with the particular disease and its variable nature. Dickens has tied his hero up to a young woman with whom he can do nothing, so he slays her, and slays her by a ladylike form of consumption, with no distressing symptoms.

Lassitude and emaciation set in and kill her in a few weeks. Dickens, whose ideas of fevers and their infectivity are so crudely displayed in the sickness and death of little Johnnie Harmon, could make his medicine a true and fairly accurate background of a picture if he chose, as we have already seen, and was also well aware of the feelings invoked by sickness and the changes of behaviour that it induces. But he was not attempting anything of the sort in dealing with Dora's case, and I have the personal feeling that he removed Dora from the scene because he altered his mind as to the construction of his story, as was probably the case with the orphan in *Our Mutual Friend*. At the same time it must be allowed that cases like Dora's case have occurred. The course of acute tuberculosis may be very rapid and attended with few distressing symptoms until the end. Dickens does not give any details of the illness, but he may have been aiming at a description of what at the time the book was written was called 'galloping consumption.'

Charles Reade used medicine a good deal in his full-blooded bumptious stories, and although his sense of omniscience betrayed him into many mischievous errors, he was sound in some of his important conclusions. He has in the justly popular novel, *Foul Play*, written by himself and Dion Boucicault, a remarkable case of phthisis. The heroine has the disease, and, considering it irremediable, spares her father the shock of learn-

ing what she has discovered for herself. If he knows that she has spitting of blood he will at once know that she is doomed, inasmuch as her mother was a phthisical subject. But circumstances—and circumstances of a truly sensational kind—lead to this young lady being left on a desert island, where she has to sleep in a hastily constructed log shelter and labour all day beneath the sky in accordance with the habits of brave castaways. She puts on weight, increases from strength to strength, and utterly loses her tuberculous infection. This book was written in 1868, and at that time few save George Bodington, the first to advocate the open-air treatment of tuberculosis, would have believed the episode possible. Bodington's book was written in 1840, but his teachings were coldly received, and by 1868 were forgotten. To many medical men, in a book teeming with impossibilities, the episode of Helen Rolleston's recovery may have seemed the least credible ; we now see not only its possibility, but its extreme probability.

Among general or systemic diseases a certain amount of play is made with fevers, but the pathognomonic symptoms are rarely given in sufficient detail to enable us to make a diagnosis. I cannot recall any case in what may be called a standard novel where an accurate study of scarlet fever or of typhoid fever occurs, and the zymotics are generally and indifferently used to remove superfluous persons. During the evolution of that

magnificent muddle, *Our Mutual Friend*, Dickens in all probability changed his mind more than once, and when he decided to get rid of the Boffins' adopted orphan he did it with great celerity by fever. The orphan had spots which came out on his chest. They were very red and large, and he caught them from some other children. So the orphan was driven to the Children's Hospital, where he was nursed in a general ward, and died shortly afterwards, conscious to the last, and bequeathing toys (and infection) to his room-mates, and a kiss to 'the boofer lady.' Fevers seldom receive closer observation than that given to them by the greatest romancer in our language, but Thackeray knew a surer way of treating them, having a different object in view. Dickens was out to create sympathetic interest. It is perfectly easy to say that he was sentimentally inaccurate, but it will be a bad day for human nature when the abounding grace of Mrs. Boffin's charity fails to draw from the reader its tribute of tears because for the minute the great writer, who was also a great sanitary reformer, forgot that contagious and spotty things, whatever their names, ought not to be nursed in the general wards of hospitals. Thackeray, in describing the epidemic of small-pox which falls so suddenly and with such appalling results upon Castlewood, is not attempting to enlist our sympathies with the sick: he designs only to show us how people behaved in such circumstances in the reign of Queen Anne. The

epidemic is brought before us in *Esmond* in a vivid manner, the baldness of phrase being, of course, studied ; especially effective in the simplicity of wording is the description of the panic that was produced in the era before vaccination by this terrible and disfiguring scourge of populations. Neither Parson Tusher nor Lord Castlewood takes any shame to himself for frank terror, while the mortality that ensues in the little community goes far to justify their attitude. The progress of the attacks sustained by Henry Esmond and Lady Castlewood is not reported at any length, but, save for the remarkably brief incubation in the former case, an accurate clinical picture is drawn both of symptoms and sequelae, while the little touch which tells that the gracious and graceful lady's nose remained swelled and red for a considerable period is truly of Thackeray.

Nervous diseases are largely employed by novelists, but few of them describe any definite pathological condition, so that it is impossible, as a rule, to say that the subject under consideration is the victim of spastic paralysis, locomotor ataxy, progressive muscular atrophy, pseudohypertrophic paralysis, paralysis agitans, or any other disease or symptom-complex. The nervous diseases, which are recognised by medicine to have a distinguishing morbid anatomy, are lumped together in the novelist's mind as the fevers are, and this perhaps is just as well. The diagnosis of these diseases, one from the other, is not easy in real

life, and to attribute a mixture of physical signs to a character in fiction is in many instances to give to the imaginary patient much of the medley of disabilities which the patient in real life would have complained of. And just as the zymotics are largely used as a good method of removing obnoxious persons, so nervous diseases have their generic employment—they are used by the novelist as an hereditary curse. The perfectly correct service that thus is demanded of them makes the inaccuracy of the description of any particular case of no consequence.

It must be remembered that behind the manifestations of cerebral or spinal lesions there is frequently an origin lying in the defaults of some other organs or tissues ; paralysis, for example, commonly occurring as a sequel of cardiac or renal disease. The apoplectic fit, aphasia, agraphia, the withered arm, and so on, have all been introduced by novelists into their stories, and often there is evidence that this has been done with close observation. In *Monte Christo* an aphasic subject is dramatically depicted. Indeed, it has always seemed curious to me that Dumas should have been the author of the chapters in *Monte Christo* where old Noirtier makes his will. The will-making powers of the aphasic, and the methods by which, where the subject is also agraphic, his wishes ought to be communicated to his lawyer or his friends—these things make up a very difficult and delicate matter of legal medicine, and we

should hardly have expected the chronicler of Joseph Balsamo's fantasticalities to indicate a practical and valuable way out of forensic difficulties. But this is done by Dumas. The kind of sufferer that Noirtier was is clearly shown—he was an instance of aphasia where the intellectual faculties are unimpaired. Other circumstances in the case do not agree with his being a sufferer from pure aphasia, but what Dumas brings out is that there is in him no disturbance of the emotional faculties, no perversion of the judgment or affections, and no diminished firmness of intention. This last is a touch not in accordance with accepted medicine, as I believe it is generally allowed that most aphasic subjects are greedy of suggestions, and Noirtier's paralysis was so profound and general that he should have been a malleable person. He could understand spoken and written language, but had motor aphasia together with very complete bilateral paralysis, and could not communicate his wishes in any way save by moving his eyelids. He had only these, and truly eloquent eyes, with which to transmit his intentions and desires to his notary, so that the pathology is not impeccable, for we can hardly imagine a lesion whose effects are so complete and disastrous, while leaving the reason unimpaired. None the less the aphasic subject who is perfectly able to make a will is a well-recognised person, and the method devised by Dumas for eliciting the testator's wishes through the medium of a dictionary is one

which nowadays would be employed in such cases. It has been precisely recommended in some authoritative articles on the subject, which is a scientific triumph for the great romancer.

Into other regions of neurology I will not follow the novelist, but a protest is wanted against a certain common way of using insanity to punish ill-doers—if it cannot be dropped because it is stale, will the fact that it is also silly lead to its surcease? We must all be familiar with the sudden overthrow of reason that occurs in ill-behaving characters. The wretches become insane in a moment. This catastrophe generally comes at the end of the book or play, and mainly afflicts villains whose schemes have miscarried piecemeal; their anxiety increases with their terrific but futile efforts to ward off the approaching Nemesis; then some wholly unexpected disaster meets them, reason totters on its throne, and they fall with a crash, to be picked up insane. Various situations lead to this kind of fit—the diamonds kept by a thief in reserve, to secure flight when the worst has come to the worst, at that exact juncture prove to be false or to have been stolen by a confederate; the mistress, hitherto the loving accomplice, deserts the failing fortunes of him who has sinned for her; the fatal rectitude of a wife or a son closes unwittingly the last avenue of a swindler's escape. The victims get purple, grasp their collar-studs, burst into horrid laughter, tumble to earth, and are picked up gibbering lunatics who for many

years after may be seen in an asylum going through some pantomime reminiscent of the crowning catastrophe. Who first invented this kind of thing I have no idea; it is founded on no known pathology, but novelists and dramatists believe in the force of its public appeal.

Most of the diseases which find a place in a dictionary of medicine have been alluded to by some novelist or other at some time or other. My selection of books offering examples of medical knowledge has been purposely brief, for I did not desire to essay the impossible task of reviewing in detail the pathology of fiction. The attempt has been to show that medicine has certain claims upon the novelist, and to suggest that if he disregards them he may be called to order, and should be so dealt with if he affects or protests a knowledge which he is without. He should not tell false social history by misdescribing professional life. But it is not necessary for him to spoil the machinery or balance of his story by unnecessary medical accuracy.

I remember once to have written a solution of a murder mystery in a magazine competition. The story setting out the puzzle was excellently written for its purpose. It contained all the information necessary to fasten the crime upon the guilty person, but little or none of this evidence lay upon the surface, while the false scents were distributed seductively. Some week or two later the winning solution was published, and point after

point, as I had taken them up, this solution took them up—until the closing sentence. Then the murder was allotted to one criminal only, while I had given her a partner, because I knew that it was impossible physically for a woman unaided to do what the story demanded of her. Shortly afterwards I met the editor of the magazine, and told him that the successful answer to his recent competition postulated an impossibility, having regard to the respective ages and fighting-weights of the murderess and her victim, and to all the other circumstances. He was good enough to say that my forensic medicine was probably sound, but that my special training was unfortunate from the story-teller's point of view. Now my solution, which contained no medical impossibility, was clumsy compared with that furnished by the prize-winner. This was far the neater story, for to bring a second criminal upon the scene, as I felt constrained to do, required large liberties in the way of coincidence. It struck me then that the episode furnished a good example of the difficulty of introducing accurate medicine into a story of episode.

CHAPTER IV

THE MEDICINE OF DICKENS, AND A NOTE ON 'DR. GOODENOUGH'

Dickens as a Neurologist—A Pathologist in the Street—The Death of Krook—Dickens and Thackeray as Social Observers—The Church, Law and Medicine—Who was Dr. Goodenough?

IN the previous chapter I essayed to show that the use of medicine by novelists followed certain tracks. The conclusions which I have invited are briefly as follows : that the medical episode as an assistance to the working out of the plot was often well employed by the experienced novelist ; that in such use of medicine pathological accuracy, though desirable, was only material if the author himself claimed scientific correctness ; that the masters of fiction had often drawn excellent likenesses of the diseased subject, and had illustrated correctly the influence of disease upon communities, though they were not exempt from the commission of profound or comical errors ; and that only in the rarest cases was any knowledge shown of the life led by the medical man—of the nature of his successes or the reason of his failures, of the significance attaching to his qualifications, or of the usual steps in his professional career.

Though some of the statements may be chal-

lenged, the truth of the conclusions is rather obvious ; but every one sufficiently interested in the questions can point out that I have omitted this or that striking example of the use of medicine in the novels of so and so. Well, I knew that the examples which I had selected to prove my points were chosen arbitrarily, but how otherwise could a choice be made ? The writers whose books are quoted are thoroughly well known, and many of the books must, I think, remain as permanent adornments of our literature ; but other writers, as great or greater, are not alluded to. Scores of diseases which have been described in novels, written both by those writers whom I cited and those whom I omitted, were not brought into discussion ; and it was obvious that any particular examples which I gave could be paralleled by others which might seem more to the point in connection with a particular disease, or more typical of an individual author's genius, than those which I hit upon. Such a subject as the use of medicine in fiction, even within the narrow limitations set to myself—viz. that only well-known novelists writing in English or French would be quoted—must be completely outside the scope of a chapter, if all the available evidence upon which any general conclusions are to be arrived at has to be quoted. For such a task a large book would be required, and I would not write such a book even if I had the knowledge and skill to write it very well ; for I do not think that it would repay the

trouble of reading. Too many examples of the same episode, too many repetitions of villainy with the same object and of virtue with the same reward, would be the result of the compilation. The use of medicine in the novels of Charles Dickens is in itself an ample subject for consideration—too large a subject, it may be seen, for this essay, if anything like the thoroughness postulated by a hard critic be expected.

The length of many of the novels of Dickens, their multiplicity of episode and the vast quantity of characters introduced, make it certain that no one reader of his works would select, in illustration of any text or in support of any thesis, exactly the same passages that another reader, equally his admirer, would decide to rely upon, in proving any point.

I have taken my examples of the use of medicine almost wholly from the long novels, and I know that I have not exhausted the mine. But I have been surprised at the amount of medicine contained in those works of Dickens which I have recently consulted, and in particular I have been surprised at his knowledge of the professional medical life of his day. Here he is ahead of most English writers, save those who happen also to have been medical men ; while it is evidence of the wide area over which his kind and fantastic genius ranged, that this particular knowledge would not be claimed readily for him, so hidden away is it in the ramifications of his romances, so trifling are the things

which display it, and so subordinate are the characters whose behaviour prove it.

But the medicine in Dickens's novels is nearly all of one large category. Who are the sick people in these novels is a question to which no certain answer can be given ; for many characters go through his books, without a hint of physical suffering, who are so warped and twisted that they conform to no real standard of health, the deformities being as marked in their bodies as in their minds. It is in descriptions of mental disease that Dickens revels, but it is especially difficult to determine whether a particular person is definitely a lunatic, or merely an eccentric, or the victim of some obsession or self-delusion, utterly spoiling his or her intellectual balance.

Mrs. Nickleby's unnamed admirer is, with due allowance made for the deliberate exaggeration of the comic side of lunacy, a fair picture. There may never have been a lunatic exactly like him, amorous failings taking as a rule a much more unpleasant shape ; but there is no reason why a certificated patient should not behave in much the way that this elderly lover behaved ; he would also have behaved in other ways, of a sort which Dickens would never have allowed himself to hint at.

Smike is an accurate and even terrible picture of the half-witted subject ; hunger, humiliation and pain have broken his spirit, and the association with his condition of what is apparently chronic

phthisis is plausible. But can SMIKE be considered madder than either SQUEERS or his daughter FANNY? And was not NEWMAN NOGGS in his long-cherished revenge nearly as mad as the LOTHARIO in small-clothes?

The senility of the 'Father of the Marshalsea,' of old CHUFFEY who could only be recalled to life by ANTHONY CHUZZLEWIT'S voice, and of Grandmother SMALLWEED who required the stimulus of a blow from a cushion to arouse her; the religious madness of LORD GEORGE GORDON; and the congenital idiocy of BARNABY RUDGE, and the weak-mindedness of MR. DICK—are all well delineated. But it is difficult to say that the characters, varying as they do in their manifestations of madness, and in the depth and seriousness of their delusions, are much more mentally unbalanced than QUILP, or even MRS. CLENNAM. BARNABY RUDGE is an interesting character, medically speaking, because in his case DICKENS shows belief in the phenomenon known as *telegony*. BARNABY is born with a bloody mark upon his wrist owing to his mother a few days before his birth having clutched the wrist of his murderous father in her terror.

EDGAR ALLAN POE, criticising the episode in a review, pointed out that this was probably a slip on DICKENS'S part, who intended to make the murderer clutch the wife's wrist. POE'S surmise is shrewd; but in either event the result belongs, as far as BARNABY is concerned, to the realms of

imagination, and not to any accepted occurrence in heredity.

The difference immediately to be noted between the characters whom Dickens labels definitely as insane, and those whom he leaves us to label as we choose, is that the latter are more monstrously deformed.

Squeers, squat and dirty, with but one eye and 'the blank side of his face much wrinkled and puckered up'; Fanny Squeers, with her harsh voice and squint; Quilp, 'so low in stature as to be quite a dwarf, though his head and face were large enough for the body of a giant'; Flintwich, whose 'neck was so twisted that the knotted ends of his white cravat usually dangled under one ear,' and whose swollen and suffused features gave him 'a weird appearance of having hanged himself at one time or other and of having ever since gone about halter and all, exactly as some timely hand had cut him down'; Noggs, 'with goggle eyes, whereof one was a fixture, a rubicund nose, a cadaverous face,' who 'rubbed his hands slowly over each other, cracking the joints of his fingers and squeezing them into all possible distortions'—all these people present the outward appearance of well-marked types of mental defect or degeneracy, and Dickens was intuitively right to make them act in defiance of recognised standards of reason. But not a doctor drawn in Dickens's pages would have had this sound psychological instinct. For none of them was learned, or a

lover of learning. Dickens had it from cultivation of his powers of observation as much as from the intuition that distinguishes his genius.

As no one can say exactly where physiology ends and psychology begins, the connecting links between psychology and medicine must often be very close ; we know this now as a commonplace, but fifty years ago it represented the teaching of only advanced thinkers. To Mr. Chillip, Mr. Jobling, and Sir Parker Peps such words would have meant nothing. Psychological modes of thought assist in the exposition of therapeutics, and the merely materialist physician is nowadays bound to fall behind in the ranks of his profession. The medical men in Dickens's pages were all materialists—of this we may feel sure ; but Dickens himself had a very close appreciation of the union between physiology and psychology. None of his medical men is ever described as seeing any evidence of this union, and it often happens that characters do not appear in his books as definitely diseased people, requiring medical attention, when they are really at least half-mad. But Dickens makes them act madly and justifies doing so, in many cases, by putting their cranky intelligences into physical frames of the sort which we now recognise as often accompanying degeneracy.

I have purposely dwelt upon Dickens's treatment of the mentally unbalanced, because he introduced these characters into every one of his

books, and did so with skill and discrimination. The picturesqueness of the unbalanced mind appealed to him ; he felt towards the crazy and unexpected sentiment and emotions of Mr. F.'s aunt, Miss Havisham, or Mr. Dick as he felt towards a weed-grown churchyard, the oozing planks of a derelict wharf, or the sagging façade of a slum. The ruin he deplored ; the message of ineffectiveness and even of terror conveyed he recognised ; but the attraction of mystery was the predominant emotion with him. The usual diseases he described hardly at all, and when he employed them in his narratives he did so merely as an assistance to the story, taking little pains to obtain accurate information upon the symptoms and pathological history. He was an unconscious pathologist in the street, and he stored the memories of quaint features, crooked anatomies, unbalanced gestures and disordered gaits with the wonderful accuracy and minuteness which he displayed in recalling the buildings or the vistas. He did not know, and did not desire to know, what actual physical defects or mental lapses were producing the noticeable things, any more than he desired to know and differentiate between the orders of architecture ; the mystery that lay behind was a great part of the allurements, and he would not have it dispelled. He would not have been even interested to learn that Mrs. Nickleby's case has been given in a text-book as an example of ' psychasthenia, character-

ised by loss of conscious control of the verbal stream.'

The only occasion when I remember Dickens to have displayed any desire to justify the correctness of his medicine is in connection with the death of Krook. Krook was a drunkard who died of spontaneous combustion, and the pathological notes of his illness and death would not be accepted as sound by any medical man.

For his account of the death of Krook he will go bail, but takes no credit to himself in having drawn, in Dick Swiveller, not only a most laughable character, but a wonderful portrait of the feverish and irresponsible alcoholic subject, the man who drinks to satisfy no craving for drink, but simply to ensure that 'the fire of soul is kindled at the taper of conviviality and the wing of friendship never moults a feather.' It is these toppers whom a good restricting influence can entirely reform, and that Dick should find moral and material salvation with his 'Marchioness' is a sound piece of medical history.

The death of Krook was dramatic, terrible, picturesque and fitting, and as such should pass free of all criticism. Improbable it certainly was, but this fact did not affect the story in any way. It was an isolated, if highly unusual, event; and it does not seem to me that Dickens's use of spontaneous combustion was other than perfectly fair in fiction. The story did not depend on Krook's dying in this way; it is not suggested that it was

a usual form of death, and no one considers that a novelist ought to be a pathologist. When, however, the book was published, Dickens took the field in defence of his medical learning, resenting some criticism by George Henry Lewes, who was no pathologist and an inaccurate though learned man. Dickens demolished Lewes, but convinced no one; and the verdict of medicine to-day is that there is no such thing as spontaneous combustion. But the occurrence was, in my opinion, a legitimate episode in a novel, and Marryat used it with some effect in *Jacob Faithful*, his best novel in many respects. The public could not be seriously misled, save such an unreasonable portion of them as should essay to quote Dickens as an ultimate scientific authority, while the warning against drink and dirt conveyed by Krook's dreadful end has a salutary object.

The medicine of the sick mind, of the disordered intellect, and of unbalanced emotion, permeates Dickens's novels; of the named diseases he makes little or no mention. When it was necessary for his story to plan a murder by poison, or to remove a superfluous character by a zymotic, he does not specify the drug or the fever. He had some knowledge as to the symptoms and course of pulmonary tuberculosis, and was acquainted with the general features of malaria, though he blundered in several ways in his description of the malady. The circumstances of the crimes with violence, which are prominent in several works, do not

follow surgical rules, though he was never absolutely wrong, that I can recall. But save in the instance of Krook's death he never insisted that he was absolutely right, being content to use medicine as an aid to the plot and nothing more, and believing that he had drawn very little upon it for the success of his romances. In truth his books are replete with sound medical observation, all the sounder because it had no conscious medical impulse.

To pass to his treatment of the profession of medicine as a profession we find it equally sound ; but here, instead of being an unconscious and imaginative philosopher, he is a gay and libellous reporter. He writes, with his characteristic qualities of whimsicality and exaggeration, of the general practitioner as he has met him. He is not in the least flattering to medicine and barely touches on the higher ideals of those who practise it.

No doctor plays more than a very subsidiary part in the big romances, and no stress is laid upon the display by any one of them of fine intellectual or moral qualities. Allan Woodcourt, the young surgeon who marries Esther Summerson, is the single exception that occurs to me of this general rule, and the presentment is quite unconvincing and uninteresting. But if there are no stagey medical heroes, so there are no stagey medical villains. Dickens gives us the doctors whom he knew, the general practitioners whom he had

observed about their business. He drew them in a spirit of amiable if extensive caricature, and the few lines devoted to them give a very fair picture of several types of early and mid-Victorian family doctors. Sir Parker Peps in *Dombey and Son*, and the unnamed surgeon in *Little Dorrit*, are the two principal portraits of the consultant class drawn by Dickens. The first is a comical libel upon any individual physician, and yet the character has many happy points. We may be permitted to wonder how the Parker Peps of the first chapter, where he is a celebrated obstetrician, has developed into the general consultant by the time he stands at little Paul's deathbed. The transformation is an error in detail. Allowing for the fact that elaborate specialism is largely a thing of to-day, still there is a mistake here; for the practice of midwifery was half a century ago, more than at the present time, a thing apart. Thackeray would not have made such an error. His fashionable physician, Dr. Firmin of Old Parr Street, is among the meanest scoundrels in fiction, but he arrived at a consultant position in Old Parr Street through the help of fashionable friends and a fashionable marriage, which at that date was possible, and not by development from accoucheur, which was impossible.

Thackeray indeed illustrated the social position in a very precise manner, through the mouth of that gallant old snob, Major Pemmennis.

‘I dine at Firmin’s house,’ said the Major, ‘who has married into a good family, though he is only a doctor and——’

‘And pray what was my husband?’ cried Mrs. Pendennis.

‘Only a doctor, indeed!’ calls out (Dr.) Goodenough. ‘My dear creature, I have a great mind to give him the scarlet fever this minute.’

‘My father was a surgeon and apothecary, I have heard,’ says the widow’s son.

‘And what then’ (says the Major)? ‘And I should like to know if a man of one of the most ancient families in the kingdom—in the empire, begad, hasn’t a right to pursoo a learned, a useful, an honourable profession. My brother John was——’

‘A medical practitioner’ (says Arthur Pendennis).

‘Stuff, nonsense—no patience with these personalities, begad. Firmin is a doctor certainly—so are you—so are others. But Firmin is a university man and a gentleman. Firmin has travelled, Firmin is intimate with some of the best people in England and has married into one of the first families.’

The whole passage is illuminating in showing the gulf which existed in the first half of the nineteenth century between the general practitioner and his consultant colleague. Major Pendennis does lip-service to the dignity of medicine in the person of his brother, but has a whole-hearted regard for the social standing of the Old Parr Street consultant, though it was due to everything but scientific achievement.

Thackeray himself can be seen to have no sympathy with the Major’s attitude, though recognising its existence. Dickens, judging by

Sir Parker Peps, was ignorant of the class distinctions which at that time were very real, though disappearing. Major Pendennis was representing, as he would, a Regency code of opinions, but his creator was aware of the social rise of the medical practitioner, which took shape under the first Medical Act.

To return to medicine as portrayed by Dickens. The unnamed distinguished practitioner whom Mr. Merdle, the eminent financier and thief, consulted with regard to his health, is a medical Tulkinghorn—he keeps close watch on his patients, preserves their secrets, commands their confidence, and enjoys the power that he thus secures. This is hinted at, not laboured over as it is in Mr. Tulkinghorn's case, but the impressions produced are identical. We can see, in Mr. Merdle's adviser, the man of the world, knowing so much of the seamy side that he is necessarily disillusioned, kind, tolerant, and witty. At least I think I can see all that, though vision is helped by only a few sentences.

Dr. Bayham Badger, Mr. Chillip, Mr. Losberne and Mr. Jobling are far more closely observed. They may be taken as typical examples of Dickens' attitude towards the general practitioner. It is the attitude of Mr. Merdle's medical adviser—critical and tolerant. Dr. Bayham Badger, 'Mrs. Bayham Badger's third,' is a more or less fashionable doctor, and the sketch of the socially ambitious middle-class man is distinct. This pink and

white crisp-looking gentleman, with a meek voice and surprised eyes, was probably quite a successful general practitioner, but he never could have had any sense of the meaning of his profession, and never could have desired to get more out of it than a secure and, if possible, rising social position. An ass and a sycophant, he may very well have known the routine of his work, and would in all circumstances have behaved with decorum. He was a safe man.

Mr. Jobling was essentially an unsafe man. This accomplice of knaves, the tout of Montague Tigg, himself touted for by undertaker and nurse, belonged to an evil school. The amount of harm that a corrupt practitioner can do, much of it quite unconsciously, is indicated in Jobling's character. 'We know a few secrets of nature in our profession, sir,' said Mr. Jobling. 'Of course we do. We study for that; we pass the Hall and the College for that; and we take our station in society on that.' Note that Dickens knew the regular double qualifications under which the English doctor usually practised at the time; most novelists would have given Jobling some impossible degree. But Jobling took his own station in society upon nothing so orthodox and creditable as his diplomas. Whether he was a skilled practitioner or not, his success was clearly due to the fact that he was not nice in his morals, and his unscrupulousness was a direct link in the chain between Jonas Chuzzlewit and murder.

Mr. Chillip, the meek and mild medical man who officiated at the birth of David Copperfield, is an excellent character as far as he goes ; we may well consider him next, to obliterate the disagreeable impression left upon us by Mr. Montague Tigg's ' Jobling, my dear fellow.' Mr. Chillip's professional life is duly observed. He moves in the social scale that the village doctor would do, and his kindness and amiability get success for him, as they ought. His goodness and simplicity are transparent, and in the sphere of life where his path lay we may be sure that he was an ever-pleasant as well as ever-present help in time of trouble. The same may be said of fat Mr. Losberne, who ' splintered up '—Dickens meant ' put up in splints '—Oliver Twist's arm, and who so gaily dislodged Mr. Giles, butler and doer of the deed, from the position of hero which he had assumed.

The family medical adviser is referred to casually in nearly every novel, but the four selected for mention are the most carefully drawn portraits. Their sum total cannot be regarded as altogether satisfactory. For all are ridiculous and one is highly so. None is ever placed in any position where the possession of high principles would be tested, and one would certainly have broken down under the slightest test. But three are good fellows, and it is not suggested that, within their limitations, they do not all do their work efficiently.

The way, however, to see how far Dickens was

intending to be harsh to the medical profession as a whole is to look for a moment at his treatment of the other professions. The law, of which he had some practical knowledge both as clerk and police reporter, is lampooned throughout. The lawyers are far more important to the stories than the doctors are, and their record of villainy is prodigious. Sampson Brass and Uriah Heep are first-class villains ; Vholes, Dodson, Fogg, Stryver, and Pell are very unpleasant people ; Jaggers of Little Britain, so burly and bullying, immersed in court business of a criminal kind, has this in common with Tulkinghorn of Lincoln's Inn, so close and irresponsible, the silent depository of family confidences—neither does anything from a high motive, though I have a habit of liking them both. Eugene Wrayburn, whimsical and fascinating, is an unconscious bounder ; Hiram Grewgious and Perker are the best of a poor lot morally ; the second is honest and competent, while the first is a good man.

The Church is condemned otherwise—it is hardly ever mentioned in the books at all as a social or useful force. Think of what this means. These lengthy and complicated romances, containing over two thousand characters, and for the most part dealing with contemporary life—though the phases of that life and the individuals who live it may be rendered by a teeming imagination in terms of cubism rather than of photography—contain, as far as I can remember, only one clergy-

man worth recording for his virtues. Quite a large proportion of the names in any dictionary of Dickens's characters would fall under the headings of unfortunate, poor, sick, crazy or bad. Yet in how few instances do the ministrations of religion, as proffered by the ordained representatives, play any part in the drama. The chapter at Cloisterham and its breezy boring minor canon, Mr. Crisparkle, play no part in the tremendous dramas about them, and the bishop who dined with Mr. Merdle to meet the Barnacles is a jokelet. *Oliver Twist* went through his terrible association with crime of the meanest as well as gravest sort on the spot where, later, Mackonochie and Stanton became part and parcel of daily life, and where the seeds that they have sown bear copious harvest on unpromising soil. No hint is given by Dickens of any sympathy from the clergy with those who had strayed from the fold. True, the Church at the accession of Queen Victoria was not active in the spheres in which Sikes, Nancy, Fagin and John Dawkins moved ; but it is surprising that neither did Dickens's imagination prompt him to describe the servant of God working in such a blasted vineyard, nor did his magnificent sense of justice move him, so far as I remember, to urge the Church to carry on some work of reclamation. I recall no passages of the sort in his works. The Reverend Frank Milvey, 'officially accessible to every blundering old woman who had incoherence to bestow upon him . . . expensively educated and

wretchedly paid,' who toiled all day and night 'out Holloway direction,' stands out as a very St. Francis in an imaginary world where no others compete with him for canonisation. Compared with Dickens's treatment of the legal profession, which he manhandled bitterly, riotously and with gorgeous humour, and with his treatment of the clerical profession, which for practical purposes he ignored, I find his qualified regard for medicine complimentary.

If none of Dickens's medical men stays much in our memories, the exact contrary may be said of his students and his nurses. Sairey Gamp and Betsy Prig, Bob Sawyer and Benjamin Allen are as well known as Micawber, Pecksniff, Sydney Carton and Mr. Pickwick himself. They come, I think, within the scope of a consideration of medicine in Dickens.

With regard to the nurses, Dickens drew what he had seen, reported what he had heard, and helped a public, rocking with mirth, to appreciate the existence in its midst of a dangerous scandal.

With regard to the students, Dickens also drew what he had seen, and the injustice to medical students lay in his attributing to students of medicine all the loose habits of students in general, and then typifying students in general by two particularly special examples. It is the old but none the less sound defence of those who would explain the almost boundless exaggeration of some of Dickens's characters to say that he drew types

not individuals. No one was ever so good as the Golden Dustman, so fatuous in their ways as Mr. Meagles and Mr. Podsnap, or so irrelevant as Flora Flintwich and Mrs. Nickleby ; they are the exposition of their failings. Bob Sawyer and Benjamin Allen, who were suggested by Pierce Egan's heroes, are the personification of deboshed apprentices ; they are not portraits of students, and certainly not of medical students. The observations from life made by Dickens in his youth—he was only twenty-four when he wrote *Pickwick*—were made in a humble stratum of society, where one young man in training for his calling was much like another. Dickens mixed up all the idle tyros of any trade or calling across whom he came, and a good many of these were not embarking upon any professional career, and presented the quintessence of their humour and raffishness by two young men with the label of medical student attached to them. By the time he was writing *Bleak House*, that is to say some fifteen or sixteen years after the publication of *Pickwick*, he knew more ; and Richard Carstone, who entered the medical profession under the tutelage of Mr. Bayham Badger, in what was then quite the orthodox manner, though a tragically inefficient person, was no rowdy.

On the whole, I think Dickens treated medicine well. He placed neither the science nor the practitioner on any pedestal. But that he respected medicine is indicated in several ways. He re-

frained from introducing into his books pathological travesties, the result of the ill-digestion of text-books. A great sensational novelist, he did not once make a doctor play any leading part as a villain. Lastly, he helped in a very pronounced degree to rescue society from the ministrations of the hopeless class into whose hands the calling of nursing was committed. At the time of his earlier writings our grandparents suffered much from the nurse-hag. I think of their sorrows with fortitude when I reflect that it is from their sorrows that we derive Sairey Gamp and Betsy Prig. Society owes Dickens a double debt for having buried the nurse-hag under inextinguishable laughter.

A Note on 'Dr. Goodenough'

The character of Dr. Goodenough, reference to which has been made just now, is often stated to have been drawn from Dr. John Elliotson, the famous physician at University College Hospital. To a certain extent this may be the fact, but curiously enough, because Dr. John Elliotson came to professional grief and Dr. Firmin came to total grief, the absurd statement has been printed that Thackeray meant to delineate Elliotson by the scoundrel Firmin. The story of the fall of Elliotson is not without its lessons to-day ; there is no doubt that Thackeray considered him to be a deeply wronged man.

In 1838 Elliotson was the senior physician on

the staff of University College Hospital, a staff second to none in Europe for brilliancy, comprising as it did Samuel Cooper, of the *Surgical Dictionary*; Liston, the most expert operator of his day, certainly the boldest and probably the most successful surgeon London has ever seen; Richard Quain, the author of *The Anatomy of the Arteries* and a mine of pharmacological lore; and Robert Carswell, of unequalled pathological knowledge. He was co-professor at the medical school of University College with these, with Robert Grant, the zoologist, Huxley's predecessor as Fullerian Professor at the Royal Institution; and with Sharpey, the profound physiologist, and the autocrat of the elections of the Royal Society. In this splendid company Elliotson more than held his own. A comprehensive lecturer in the classroom, a most acute physician in the wards, and an original, unconventional thinker in every capacity of life, he was respected and admired by his colleagues, much consulted by the public, and immensely popular with the students. Being such a man as he was, the story of his connection with animal magnetism and of his experiments in a kind of black art conducted at University College Hospital forms one of the most extraordinary pages in the medical history of the century. Nor is that page rendered less curious by the fact that Elliotson seems to have acted in perfect good faith—to have been, in fact, a dupe along the very lines where he might have been expected to be a detective. But he

was vain of his readiness to learn. He had made many valuable observations in the uses of drugs, and he was wont to stimulate his classes by pointing out that in the domain of therapeutics the student had open before him a virgin country awaiting the explorer. For anatomy and surgery, as then taught, appeared more or less finite subjects. The enormous developments that physiology and pathology would experience as a result of the study of micro-organisms were not foreseen, and Elliotson, a sanguine, imaginative man, sought outlets for his inventive mind. As bad fortune would have it, he came across a certain Baron Dupotet, who had experimented in Paris with mesmerism, and obtained permission for him to make a trial of his methods of healing in the wards of University College Hospital. Elliotson's own association with these experiments was at first that of an interested spectator. Avowedly on the lookout for departures in therapeutics, Baron Dupotet's claim to relieve, and in some cases cure, epilepsy by the production of the mesmeric slumber seemed to him to fall within the range of legitimate inquiry.

Had Elliotson stopped there, all would have been well. Had he been content with a simple attempt to benefit the sick, of whose desire to recover from their diseases there could be no doubt, and whose only collusion would consist in faithful obedience to the physician's orders, no one would have objected ; at any rate, no one would have had a good case on which to found their objections. But, un-

fortunately for Elliotson, he was led to employ mediums of whose good faith he had no proper guarantee, and by their pretended powers and revelations to see in mesmerism a new force for good or ill in the world. Everything that is or has been meant by Perkinism and animal magnetism, transferred vision and exoneurism, seems to have been put in practice by Elliotson in conjunction with his two mediums, Elizabeth and Jane O'Key, while his initial intention to use the new force, whatever that might be, in therapeutic measures was entirely lost sight of. These two hysterical girls being thrown into slumber were invited to tell the time by watches applied to their elbows or navels; were asked questions as to the proper medical treatment of themselves and other patients; and were apparently twisted into convulsions by passes made at them at a distance by Elliotson, or by contact with certain fluids or metals which had been previously charged with 'magnetism' by being held in Elliotson's hand. The performance was mystical and inconclusive, for no certain results were ever obtained. It, moreover, showed a tendency to degenerate into indecency, while the only therapeutic innovations that resulted from it would have given effect to the dangerous precedent of allowing patients to prescribe for themselves, and even to interfere with the prescriptions given by the medical staff to fellow-sufferers, less marvellously gifted.

It was no wonder that the hospital authorities

were much exercised in their minds at Elliotson's behaviour. Two camps were quickly formed. The Governors were opposed to the continuance of performances which were gaining the institution much unfavourable notoriety and some ridicule. Certain of the students, headed by Liston, supported the Governors' view. On the other hand, Elliotson had a grand argument and a great following. The argument was, of course, that all innovators are deemed mad or dishonest by their slower-witted coevals, and that the impossibility of to-day readily becomes the routine of to-morrow; the following consisted of the majority of the students, who were personally attached to Elliotson, who could bear witness to his wisdom and sincerity in other things, who were content to believe what he believed, and who were, moreover, fascinated by the atmosphere of occultism. The ‘hospital of all the talents,’ as it was called in recognition of the scientific excellence of its staff, was thrown into absolute disorder.

Thomas Wakley, the editor of the *Lancet*, wrote in his paper, which by that time had become a serious professional organ, that the solution to the trouble lay entirely in the answer to the question whether the O'Keys were or were not honest and trustworthy. If they were trustworthy, then Elliotson and Dupotet had made a discovery, but he pointed out that the words of hysterical epileptic young women, brought suddenly into public

notice, would not as a rule be considered worth any attention at all. And if the O'Keys were impostors, what were Dupotet and Elliotson? Clearly dupes or rogues. From this inference the articles in the *Lancet* allowed no escape. Elliotson accepted the challenge with a willingness and alacrity that certainly vouched for his good faith. He offered to bring his mediums to Wakley's house in Bedford Square, and there to exhibit their powers of prophecy, transferred vision, clairvoyance and extraordinary susceptibility to certain metals and fluids. Accordingly, on 16th August 1838 a performance—for no other name describes the proceedings—was given in the drawing-room of 35 Bedford Square for the benefit of ten persons, five chosen by Wakley and five invited by Elliotson. Among those invited by Elliotson to be present was a Mr. Fernandez Clarke, for many years a member of the staff of the *Lancet*, and the author of some interesting autobiographical recollections of the medical profession. Clarke was regarded by both sides as a friend, for although he was present by Elliotson's request, he was willing to further Wakley's intent to probe the facts. Accordingly, at a particular moment a test was made of the honesty of one of the mediums, Elizabeth O'Key, by arrangement between Wakley and Clarke. Of the girl it was alleged by Elliotson that she would fall into convulsions upon being touched by a piece of nickel, but would remain placid under contact with lead. Discs of these

two metals were then given by Elliotson, ‘charged with magnetism,’ to Wakley, who was seated in front of the girl, a screen of pasteboard being set between them. Wakley immediately gave the nickel, unperceived by Elliotson, to Clarke, who put it in his pocket and walked to the other end of the room, where he remained during the experiment. Wakley, now having nothing but the lead in his possession, to which metal the medium was supposed not to react, bent forward and touched the girl’s right hand. As he did so a bystander by arrangement whispered audibly: ‘Take care that you do not apply the nickel too strongly.’ Immediately the medium fell into strong convulsions, much to the gratification of Elliotson, who said that ‘no metal but nickel had ever produced these effects,’ and that ‘they presented a beautiful series of phenomena.’ Wakley at once pointed out that no nickel had been used, and upon Dr. Elliotson’s indignant protest, Clarke came forward and explained the trick that had been played, and produced the nickel from his own waistcoat pocket. Wakley now said that his point was made, and that the girl was proved an impostor, but Elliotson was persistent that some error had occurred. He considered it possible that in some unexplained way ‘the power of nickel had been present.’ The experiments were consequently persevered in, both on that day and on the following day, with the result that the behaviour of both the muddled mediums became

entirely at variance with that which was expected of them. Not only did they fall into convulsions on contact with the unexciting lead, but they remained impassive when rubbed with the influential nickel. They drank water which had been mesmerised—this was Elliotson's word, and the process consisted in the owner of the master mind placing his finger in the fluid for a few minutes—without a spasm, when it should have rendered them rigid; while water straight from the pump produced opisthotonos. 'Mesmerised' gold from Elliotson's hands had no influence on them, while sovereigns emanating from the trouser-pockets of sceptics produced neurotic results of a marked character.

Wakley denounced the whole thing in the *Lancet* as a pitiable delusion. He made no reflections upon Elliotson, who was a personal friend of his own, and had been a contributor to the *Lancet* from the inception of the paper, but he told the whole story of the experiments, when it became clear that Elliotson had omitted proper precautions, that his scientific experiments were parlour jugglery indifferently stage-managed, and that he himself had imported into the matter a degree of personal interest which had unbalanced him and unfitted him for the responsible position of senior physician to University College Hospital and teacher of medicine in the school. In December of the same year the Council of University College passed a resolution to the effect that the

hospital committee were to hold themselves instructed to take such steps as they should deem advisable to prevent the practice of mesmerism or animal magnetism in future within the hospital. Dr. Elliotson considered this resolution personally offensive to himself, and at once lodged his resignation of the posts of physician to the hospital and lecturer to the medical school with the Council of University College, at the same time making an appeal to the students to demonstrate in his favour against the limitation which had been put by the Council upon the range of legitimate scientific inquiry. The students at an excited meeting and by a slender majority ratified the action of the Council, resolving that they 'sincerely regretted the circumstances which had *necessarily* led to Dr. Elliotson's resignation.' On the same day Dr. Elliotson's resignation was accepted by the Council.

Elliotson did not die till thirty years after the exposure, and in his obituary notice in the *Lancet*, where much of the above story will be found, the following testimony to his talents and personal honour appear :

'He pursued it (his profession) as he did everything he engaged in, consistently and energetically. He was highly endowed mentally and was a good scholar, being well acquainted with ancient and modern languages. He was somewhat obstinate in his opinions and had too firm a belief in what only appeared to be true. He has

somewhat outlived the memory of the present race of medical practitioners ; but he occupied in his day a most important position, and this he occupied worthily—he was entitled to it by his talents and acquirements. Whatever were his faults, and they were probably those due to an enthusiastic temperament, it must be admitted by all who regard his character without favour and malevolence that he was a remarkable man. He was an earnest reformer. He repudiated authority when it attempted to interfere with the progress of truth. He was in the front ranks of those who opposed monopoly, and was consistent in this at a time when that consistency would have been fatal to a man less able and courageous. The breath of slander has never ventured to attack his private character. If he made enemies he had the happy power of conciliating and making friends ; and thousands of the pupils whom he instructed, and whom he endeared to him by a genuine spirit of kindness, will do justice to his memory as to one of the foremost men of our time ; while they cannot help lamenting the great error of his life which casts a shadow over his monument, which without it would have been pure and unsullied.'

It is quite certain that Thackeray would never have travestied such a man by taking him as the model for Firmin, whose fall was the consequence of a steady career of falsehood, but apart from this we have remarkable proof that Thackeray

thought Elliotson to have been very badly treated. In 1850, twelve years after Elliotson had resigned his official position, Thackeray dedicated *Pendennis* to him in warm words of appreciation and gratitude. This seems to be the only ground for the suggestion that he meant to portray Elliotson in the sympathetic character of Dr. Goodenough.

CHAPTER V

‘THEY ALL LIVED HAPPY EVER AFTER’

Marriage as an Individual, a Social and a Racial Affair—
Fairy Stories—Medical Inspection and Marriage Settlements
—Heredity and Disease—Mendelism and Marriage—The
Maligned Jukes.

‘THEY all lived happy ever after’ is the one stock phrase with which to close the fairy story—at any rate that is the form in which the raconteur is expected at the children’s hour to sum up the future for those lovely princesses, astute peasants, virtuous youngest sons and spell-bound maidens, whose joy-bells ring down the curtain. Grimm is a regular employer of the formula, and with respect to what followed upon such marriages as those of Prince Valiant to the Sleeping Beauty, or of Prince Charming to Cinderella or of Aladdin to the Princess Badroulbador, the words are always added in personal narrative to show that the end has come—not so much as a logical or artistic issue as to inform the children that there is no purpose to be served by petitioning as to what happened in the future either to the good people or to the bad; the marriage of the heroes and heroines having brought happiness not only to themselves but to every one else who remained alive to witness it, and a monotonous record of felicity being not

worth reciting, the sooner the audience gets off to bed the better. But did Cinderella, for example, live happy ever afterwards? Was her marriage good for the race? If the marriage made her unhappy, but proved good for the race, did Cinderella’s unhappiness matter much? What we reply depends on how we regard marriage.

In a well-known compendium, *Health and Disease in Relation to Marriage and the Married State*, written by a group of German authorities and edited by Dr. S. Kaminer and Professor H. Senator of Berlin,¹ Herr Rudolf Eberstadt, treating of the economic importance of sanitary conditions in relation to marriage, debates whether on legal and politico-social grounds a contract of marriage ought not to be made dependent upon the presentation of proofs that the bodily health of the intending partners is good, or that there is at least an absence of diseases which may be a source of danger to each other or to the future children. This is a most important question, and if it should come to be answered in any State by the general introduction of health certificates for marriage purposes we should indeed be witnessing a far-reaching departure in sociology. Already there are communities subject to some such form of legislation. A question can, however, be important without being urgent; the points involved may depend,

¹ An abridged version of this interesting work, translated into English by Dr. J. Dulberg under the title of *Marriage and Disease*, was published recently.

for example, upon investigations not yet completed or upon conditions not yet realised, when it is seen at once that to give an answer would be premature ; and yet we may desire very much that an answer should be given. Enthusiasts reply before the time is ripe, and if they are fortunately moved they may save their generation evolutionary embarrassments, for their inspired lead may conduct by a short cut to a destination which otherwise could only have been reached by a dreary tramping of the highway ; but, on the other hand, if enthusiasts err in their intuitions they may delay progress by their impetuosity, directing into wrong courses energy that could be ill spared—for the short cut which lures us from the highway may land us in the bog. The question of how far a certificate of health ought to be a compulsory preliminary to marriage is exactly one where we need to be careful about the guidance which we follow. We ought to ensure as far as possible that our conductor knows his way unfailingly, but such security is rendered hard by the number of circumstances to be taken into account.

The claim made for medicine that her doctrines should be consulted as a matter of course as a preliminary to marriage is one that is just now being pressed considerably by certain groups of thinkers, and it is undoubted that a large number of people, not even the majority of them belonging to the medical profession, believe that all men and women about to be married would do well to sub-

mit themselves to medical inspection as an inevitable preface to the joining of hands. To take the opposite view is regarded by some of these ardent spirits as a betrayal of eugenics, a crime which must be especially hideous when perpetrated by a medical man, but I am compelled to think that the time has not yet come when the legalised interference of the medical man in respect of marriage designs would serve practical purposes commensurate with its inconveniences.

Marriage may be regarded theoretically as an individual, social or racial affair, according as the contract has for its essential object the promotion of the happiness of the pair concerned, consolidation in social politics, or the maintenance of the race in good and improving health. But we have to remember that whatever object any two persons who are marrying may think is their essential one, they must play their part, being married, as factors in present society, and also as factors in the future of the race. They cannot escape these responsibilities. If two persons could decide that they would belong to one class, and to one class only—that is, that they would marry out of consideration simply for personal happiness, social convenience, or respect for eugenics—it would be feasible sometimes to assist them with a medical opinion as to whether they were or were not fitted to belong to the particular class selected; but, even so, the difficulties of civilised life might outweigh the advantages of scientific correctness. Too many

of the problems of heredity remain as yet unsolved, and too much waste land lies between the territories of physiology and psychology, to make it safe for medicine to undertake the task of even saying whether the offspring of any particular pair will be healthy ; any claim that is made for medicine, either that by systematic examination of all candidates for marriage a greater general happiness would be obtained, or that a larger proportion of unions fortunate for the State would be solemnised, is bound to break down partially. Certain gross tragedies, as unions where actual contagious disease might be propagated, would cease to occur, but their cessation would not cause anything like the general rise in physical condition that is believed ; while many couples who were able to pass all physical tests successfully would continue to be unhappy individuals and bad citizens, mainly because of their unsuitable marriages, even though each partner could pass an exhaustive medical scrutiny.

This would be the case especially among the upper classes, where command of money and the habit of self-indulgence make marriage an easy process, and where the environment should ensure no physical unfitness. The typical *mésalliance* of the lusty lord with the capering kitchen-maid—the story of Cinderella over again—is a good example of the union that would receive a medical blessing, but that none the less contains no stable element of happiness. It may be said that the

marriages of the upper classes—all of them, whether of love or of convenience, whether suitable from a worldly point of view or the reverse—count for very little in the history of races as a whole, now that the world, at any rate those parts of it which are civilised, is overcrowded. The rich are now so small a fraction of the population. It may also be said that the marriage of Cinderella and Prince Charming is not typical among the marriages of the upper classes, and that it is unfair to urge that, because medical inspection would not make such a marriage any greater success, medical inspection can be of no use elsewhere. I am putting this argument into the mouth of the student of eugenics, and admit its force at once. Where environment is elaborate, and where social codes restrict the play of impulse, there are many reasons for unhappiness in marriage which do not prevail in simpler circles. These reasons so entirely determine the destinies of those who are too dependent upon the circumstances about them to make any resistance, that the credit side of a good match, from the hygienic point of view, may be cancelled by the deficit in other directions. The records of the Divorce Court prove this over and over again.

I have alluded to Cinderella—consider her marriage and that of the Sleeping Beauty with an eye to eugenics, to racial developments and to social circumstances. If medical advice had been sought in these cases, all the evidence goes to show

that the contract would have received ample scientific blessing. The contracting parties were young, ardent, good-looking people, mating by inclination. To these advantages must be added the fact that the dangers of over-specialisation in breed were avoided in the case of a union between the blue-blooded Prince Charming and the low-born Cinderella. Prince Valiant and the Sleeping Beauty presumably belonged to the same class in society, and the medical man would possibly have submitted the history of her prolonged trance to a rigorous investigation, but as we learn that on the signal of the Prince's embrace the whole life of the palace resumed its normal course, it seems probable that the Princess, when she awoke, awoke in good health. From the point of view of eugenics these marriages would have been considered very suitable, and the same may be said of the union between the plebeian Aladdin and the daughter of the King of China—I forget if this marriage was ever duly solemnised. But whether the marriages would have been happy ones is not so certain. Translated into terms of modern life, Badroulbadour's *mésalliance* would have been fatal to all family life, while the other unions might well have been unhappy, and sound physical health would not have bridged the various gaps in the dispositions of the contracting members. Cinderella's husband would have found it difficult to impose his wife upon his friends, and there would have been perpetual trouble about her pretentious

sisters ; the Sleeping Beauty’s long segregation from society would have made her an unfitting mate for an adventurous spouse.

In talking of compulsory medical inspection before marriage—and it is only the case of legal compulsion that is being considered—the case of the upper classes is taken before the case of the mass of the population on two grounds. First, the upper classes would be likely to discharge voluntarily a duty which could only be insisted upon by the State as a general provision with the greatest possible inconvenience, if any State were to attempt to make medical inspection before marriage compulsory ; secondly, the upper classes are the people whose marriages are attended with settlements, and the precaution shown by the provision of settlements between married persons is quoted frequently as a precedent for similar caution in the matter of physical health. The specious comparison of medical inspection before marriage with what is termed the parallel case of legal settlements invites some comment. All prudent parents, it is said, call in a lawyer to draw settlements before marriage is entered upon, in order to insure the material well-being of the young people in the present and in the future ; surely, and with even more reason, they should seek the advice of the doctor to see that each young person brings to the common lot a fair stock of physical well-being, and a fair promise of respectable heritage for the offspring. We are assuming that no marriage can

occur without the production of health certificates ; and we must compare this case with the case where, owing to insistence on one side or the other, no marriage can occur save upon the execution of certain legal documents.

Now all prudent parents do not insist upon marriage settlements, or, rather, the marriage settlements are only insisted upon in a comparatively few cases of property. I do not know what the exact proportion of rich and comparatively rich persons in this country may be to the rest of the population, but I know that the number of these well-endowed persons is small. Probably not more than one parent in ten thousand occupies a position in which a settlement would be considered as an essential for the marriage of children. And among these it will be further found on examination that the settlement is often the very slightest sacrifice to an old-fashioned principle of insurance, because the substantial position enjoyed by the parent, being dependent upon annual earnings and not upon any hoard, does not allow of money in capital sums being parcelled out among the children. The cases where settlements are such an integral part of nuptial arrangements that their recital might be included in the church service without arousing any feeling of surprise are those which may be termed gross cases of property—cases where, whether the money settled amount to £500 only or half a million sterling, the sum is something that can be so absolutely spared

out of the common family wealth, that fairness suggests a division should be made, and prudence that ’twere well ’twere done legally.

These cases are far too exceptional, when we take into consideration all the marriages that are celebrated, for any general rule to be founded upon them, and to draw from them the conclusion that it is the custom of all prudent parents to make marriage settlements upon their children is misleading. The position has its physical analogue when a medical investigation of the amount of physical wealth, which it is proposed by the contracting parties to bring into the common stock, has to be made for reasons of the most elementary caution—that is, in gross cases of suspicion where there is distinct evidence of a profound blood-poisoning, or of an unhealthy diathesis, or of one of the few hereditary maladies. Such gross cases of suspicion are comparable to gross cases of property. Here the risks to be taken are so great, that just as the prudent parent calls business experts to his aid when he is confiding a daughter to a man engaged in a highly speculative business, so the prudent parent is right to forbid the marriage unless the suitor can prove, despite report or appearances, that he is bringing into physical settlement the necessary stock of good health to constitute a satisfactory trust. (I allude to the situation as affecting the man adversely, but, of course, the circumstances could be transposed.) Where obvious reasons exist for doubting the

good health of one or other of the contracting parties medical opinion would be most valuable, and an absolute veto of the marriage on medical grounds might be highly reasonable. But these are gross cases of physical risk, and, as with gross cases of property, their number in the aggregate is small. And just as it would be an absurd, boring, and grandmotherly piece of legislation to enact that no people should be married unless they could bring into the church with them, say, three years' income in cash, so it would be an intolerable piece of social bullying to legislate that all intending couples must undergo some form of medical inspection, merely because in gross cases the opinion of a medical man is desirable, and because perhaps in these cases a medical veto might be the only means of averting a serious tragedy.

Young men and young women are not to be considered criminally imprudent who marry without any further provision than the income or wages earned from day to day; and a stock of health which seems to be up to the average on each side ought to be considered sufficient whereon to begin married life. The medical certificate has been so much put forward as an elementary precaution in eugenics, and the idea has seemed to so many medical men to be a sound one, that I am a little scared at my temerity in finding it a very unsound one. But I can conceive it to be a mischievous proceeding often, and a useless one generally, and

Major Darwin, in an address to the Eugenic Education Society, has warned his hearers to be circumspect in seeking Government interference in the regulation of marriages.

The special circumstances of the well-to-do classes make it likely that without some measure of good health on both sides a marriage will not often take place, while those same circumstances make it possible that a marriage which appears imprudent hygienically shall be a nominal union only. Also in the well-to-do classes, if their marriages are going to be unsuccessful there will be many factors at work to bring the misfortune about, and to cause the unions to be failures from the racial and sociological, as well as the individual aspect, however healthy the contracting parties may be. For these reasons medical inspection of the candidates for marriage would serve no useful purpose as a general rule in these classes, although in a few cases, where the circumstances may be fairly compared to those which in the case of material wealth call for settlements, medical inspection is wanted. And here it is sure to be obtained quite frequently.

But what about the population at large? What about the people whose stock-in-trade is their health, whose individual happiness and prosperity largely depend upon their health, and, above all, whose offspring are to form the bulk of our population, and to do so much of the hard work of the nation that their physical deterioration amounts

to a national calamity? Ought they to undergo some form of medical inspection before their marriages are sanctioned? The answer often given to this question is 'yes,' and the opinions implied thereby are becoming daily more prevalent. None the less, the answer is unsatisfactory; it is given too hastily, with the stories of hereditary amentia, hereditary alcoholic predisposition, hereditary malignant disease, and hereditary tuberculosis too prominently in the mind. It is an excellent thing that the world should now be concerned in such terrible matters, and that the medical man should find allies, not only in the biometrician and the sanitarian, but in all the thinking public, in his attempts to settle to some extent the boundaries of hereditary influences. But it would not be a good thing, either for the medical profession or the public, if a measure of safeguard were accepted which lulled the general conscience without satisfying scientific scrutiny. And I conceive of medical inspection of persons about to be married, whatever the social grade of the subjects, as being just such a measure. It would wear the appearance of a practical utility which it could not possess, or, rather, which it does not at present possess. We do not as yet know enough about the diseases that are hereditary, nor can we predict with sufficient surety what the result upon the future generation will be of the marriage of those where hereditary taint is possible, to make compulsory

medical inspection before marriage a trustworthy guide. Much sound medical advice might often be given to those about to marry, but in any particular case the chances of error would be large. They would be large whether the rich or the poor should be concerned, but in the latter case there would be the added drawback that the machinery for carrying out the inspection would be very difficult to devise.

A debate on heredity, considered from its pathological aspects, took place at the Royal Society of Medicine in the autumn of 1908, and showed very well the frail foundation upon which anything like an attempt to prophesy what would and would not be the results to the race of the mating of certain individuals, rested at that date.¹ Nor does it seem that more recent wisdom has placed us on firmer ground. There are two principal diseases which are believed widely to be hereditary, and which, from their ruinous prevalence and terrible consequences to the race, it is most important should not be transmitted, viz. cancer and tuberculosis ; while of certain nervous affections much the same might be said. The debate at the Royal Society of Medicine was arranged to centre round these diseases, and the late Sir William Gowers delivered an admirable address upon heredity in nervous maladies. This famous neurologist found

¹ The proceedings at this debate were published in April 1909, in a volume—*Heredity and Disease*. (Messrs. Longmans, Green & Co., 4to, 4s. 6d. net.)

that there was evidence to prove the hereditary nature of certain abiotrophies, of the nerve disturbances in diabetes (perhaps), and of pseudo-hypertrophic paralysis, a disorder that is especially interesting because its hereditary behaviour is suggestive of Mendelian characteristics. He also detailed certain other maladies which begin later in life, after the period of growth is over—Huntington's chorea, Marie's heredo-ataxy, and Thomsen's disease—but all these conditions, save the first, are sufficiently rare to be neglected in practical deliberations upon eugenics, and in the present state of our knowledge. Idiopathic epilepsy, that is the convulsive disease which is not symptomatic of cerebral mischief or trauma, appears to be hereditary, but to what amount is not settled in the absence of trustworthy statistics. Other speakers in the debate added little to show that the hereditary influences of nervous diseases had further to be reckoned with. To the same debate Dr. Bashford, then Director of the Laboratory of the Imperial Cancer Research Fund, made a contribution, the net result of which went to indicate that malignant disease, which all the public knows to be most distinctly hereditary, cannot be proved to be anything of the sort. In speaking of cancer we are in trouble from the beginning, because of our ignorance of the etiology of the various conditions which we call cancer ; we do not know how far tumours, having the character of malignancy in common, but otherwise differing in minute

structure or clinical behaviour, can be all classed in one category, so that a common origin may be expected for them. If a classification by the sweeping together of many of these conditions into one order of disease is correct, it is reasonable to look for one source of origin, but we are in a fundamental difficulty at once as to the directions in which search for a cause should be made, because we are not agreed whether cancer is a biological fault, which could easily be transmissible, or is a microbic disease, when hereditary qualities would be more difficult of explanation. When the weight of research leans towards the biological theory, the view that cancer ought to be hereditary becomes more logical. Conversely, when clinical facts point the other way, the hereditary theory is hardly strong enough to form an argument for compulsory health certificates.

All the world knows tuberculosis to be hereditary, and here also some of the most recent workers are in accord in believing that the condition is not hereditary at all. ‘Certainly the evidence in favour of an inherited predisposition,’ said Dr. Arthur Latham, in the course of the same instructive debate, ‘is not sufficiently strong to make me vary my practice of refusing to advise those who have suffered from pulmonary tuberculosis, and who have acquired a partial immunity in the process of the arrest of the disease, to refrain from marriage.’ All observers do not agree with Dr. Latham entirely, but all fair-minded medical men

will allow that it is no longer correct to treat the hereditary nature of tuberculosis as a dogma.

What, then, is left for the inspecting medical man to do? Of whom is he to say that this man or that woman ought not to be married? He takes much, indeed, on himself if he says it of persons with a family history of cancer or tuberculosis. Certain nervous diseases are hereditary, though many marry with a family history of such troubles and have children free from the taints. There remain the obvious degenerates, the drunkards, the imbeciles, and the victims of profound blood-poisonings, like syphilis. These, of course, should not be allowed to have children, but it would not be easy to make legal regulations which would prevent many of these undesirables from mating. If we try to define a 'degenerate' or a 'drunkard' exactly, we shall see the numberless complications that would arise in enforcing the legal restraint to marriage.

Medical inspection before marriage would fail in the upper strata of society as a means of securing greater happiness to the contracting parties, no less than as a means of improving either the amenities of existence or the physique of future generations; and this because any good that it might do would be outweighed by the force of the environment in which these classes live. Medical inspection before marriage in the lower strata, to which the huge majority belong, would fail, not only because of the impossibility of enforcing it

legally upon the populace, but because, if it could be enforced, medical men have no common stock of knowledge, as yet, to guide them as to what persons should be allowed to marry with a view to the health of the resulting offspring.

Have we in the Mendelian theory, which appears to be borne out in the transmission of pseudo-hypertrophic paralysis, anything more certain upon which the medical man can rely? Some think that we may have in Mendelism a source of definite assistance to the medical man who is asked to give advice concerning an intended marriage, but this opinion stands upon an insecure base. The doctrines of Mendelism are so fascinating in their details that it is inevitable that many should anticipate great results from further work on Mendelian lines. If the followers of Mendel are right, and if in their theories we have the solution of fundamental riddles of heredity, the questions what are, and what are not, suitable marriages will be attacked by them. It would not be fair to expect that time to be soon, because of the numberless forces of social environment which have to be overcome before the principle of mating with an eye to a sound posterity can be in the least general. But at present the promise of Mendelism is so out of all correspondence to the performance that it is not easy to maintain gravity when some drawing-room prophet foretells the swift disappearance of disease, which must follow upon the breeding of the human race in accordance with Mendelian

principles. Many indeed do not keep grave, while the seriousness of others has its origin in the intention not to hinder the struggles of what may be a movement towards the light.

Undoubtedly, there are very many observers, particularly among medical men, of the directions in which Mendelism would appear to be leading, whose silence must not be taken as passive support, but rather as a tribute to the gallantry of the leaders of a new movement. Everybody now knows of one or other of the usual expositions of Mendelian laws, so that there is no need to recall the sequence of events if (say) a round-seeded pea be crossed with an angular-seeded pea, self-fertilisation having been prevented. From such experiments it can be proved that true breeds can be established in certain circumstances, and that ill stock will disappear in other circumstances. That is something—nay, in theoretical discussion it is a great deal, for a large class of thinkers have of late adopted gloomy views on this very subject, finding in the fact that man must be a mosaic of the qualities of his ancestry a justification for believing that we are the irresponsible and helpless puppets of our lineage. It is something, therefore, to know that a pea-stick can be bred tall, or that a pea-flower can be bred pink, but whether we are at liberty to hold this something of importance in human breeding is as yet very doubtful. It is embarrassing that we never know, save by actual individual experiment, what qualities for certain

will respond to the Mendelian notation, nor whether they will prove dominant or recessive in their action. So that, while any application of Mendelian principles to marriage means that medical or scientific advice must be sought before a marriage is contracted, and that the pedigrees of the intending couples must be carefully scrutinised, we do not know for what to look.

It is believed by some easy to ascertain many ingredients of our composition which are transmitted according to Mendelian principles, but as far as disease is concerned—as far, that is, as the medical voice could be raised in opposition to any projected marriage—we come down to a few deformities, to a form of night-vision, and to pseudo-hypertrophic paralysis. These latter two conditions, being transmitted by the female but attacking the male, suggest that sex is itself a Mendelian characteristic, and that in the female, regarded as the more perfect organisation, there is present a something, namely, her femaleness, which counteracts the pathological factor. From regarding sex as a Mendelian characteristic to a belief that the future sex can be predicted is but a step, and investigations along this line have been proceeding, I believe. But the thing in Mendelian work which gives it its greatest importance in considering all questions of marriage is the demonstrated possibility of avoiding the transmission in certain plants of certain qualities by avoiding the contraction of certain alliances. This is going to the very root

of the matter, and if, contrary to the evidence as yet before us, any practical rules as to the transmission of human disease in general can be given to medical men by the Mendelists, the great conception of some Mendelists as to their position in eugenics might be realised. For observe that marriages contracted upon perfected Mendelian lines would cause a segregation of the unfit.

Those who study how to promote the improvement of the breed as applied to man—of course including woman—point naturally to the improper or ill-assorted marriage as the cause of much degeneration of the stock. The cry in cases where obvious physical or moral defect is present is for segregation of the unfortunate subjects as a method of sterilising unfit persons. Murderers are sterilised effectually by capital punishment or life sentences, and habitual criminals are sterilised for long periods by their recurrent visits to penal institutions. But society, which thus impedes the fertility of the murderer and the professional burglar, subsidises insanity and other forms of degeneracy to some extent by a bountiful supply of philanthropic and State institutions, where persons under skilful care are brought into a condition sufficiently stable to warrant their treatment as free agents, when they immediately produce a progeny of suspicious origin. But sterilisation, whether partial or complete, and whether by imprisonment or by anatomical treatment, is an unthinkable remedy for possible hereditary ills in

most cases, if only because of the uncertainty as to the part played by heredity. If we consult the most thoughtful of our modern biologists for any leading in the matter, we find the number of conditions which, in their opinion, would warrant the imposition of compulsory sterility far smaller than the number that is recommended by less scientific authorities. The practical use of Mendelian doctrines for the prevention of transmissible disease as yet has no existence.

The case of the Juke family is always used as an example of the ill wrought upon a nation or humanity by the propagation and proliferation of a bad stock. But the lurid interpretation of the Juke pedigree has owed a good deal to imagination. This family was made the subject, some forty years ago, of detailed investigation by Mr. R. L. Dugdale, and his small book, which was widely read at the time of issue, was republished in 1910 with an introduction by Professor F. H. Giddings. Owing to their striking nature, the facts chronicled by Dugdale were seized upon for the purpose of popular lecture and exposition, and were not a little distorted in the process. How distorted Dr. W. A. Brend showed recently in the *Lancet* by reviewing the reprint of Dugdale's monograph in the light of its introduction.

‘Juke’ was the pseudonym given by Dugdale to a family whose environment and lineage he traced in some cases through seven generations.

The pedigree started with one 'Max,' a descendant of early Dutch settlers who was born between 1720 and 1740, and lived the life of a backwoodsman in New York State, where backwoods then existed. Two of his sons married two out of six sisters named 'Juke,' and the descendants of five of these sisters, to the number of 540, as well as 169 related by marriage or cohabitation, were followed up, 709 in all. They were found to include criminals, prostitutes, inebriates and paupers, as well as respectable persons. Dugdale's original views, says Dr. Brend, put forward in 1887, are fully in accord with the modern tendency to attribute ever-increasing importance to environment at the expense of heredity. There is therefore considerable irony in the fact that the pedigree of the Jukes should be so often quoted as supporting precisely the opposite view. For this record of the Juke family has been quoted over and over again as an instance of the force of heredity in relation to crime, inebriety and social degeneration. Eugenists have delighted to draw a moral from the supposed story of the Jukes, and have often done so in a prominent and inaccurate way, as the following extract from the *Lancet* will show, written before Dr. Brend's inspection of the facts appeared:—

'There is the famous Juke family. Ada Juke, known as the "mother of criminals," left 1200 direct descendants, of whom nearly 1000 were criminals, paupers, inebriates, insane or on the streets. The cost to the State directly in con-

sequence of this inheritance was £260,000, while the indirect loss cannot be estimated.’ If the original book is read, especially in the light of the real figures and Professor Giddings’s preface, the Juke family will be seen to have been unfairly treated. ‘The statistical summary shows,’ says Dr. Brend, ‘that of the 709 descendants of the five sisters and those of “X” blood, there were 76 criminals, 142 who received out-door relief, and 64 in almshouses. No special investigation into the number of mentally deficient persons is recorded, but the tables show only one person of Juke blood as insane, and one idiotic. The inferences in respect of inheritance cannot be justified.’ Professor Giddings points out in the introduction that the book is in no way a demonstration of hereditary criminality or degeneracy, and that the author never made any such claim for it ; though he did not see that a series of recorded facts may always have a lesson which the recorder has not sought to convey. But a caution is uttered against mistaking coincidence for correlation, which has clearly been needed, for, wherever the facts appear to indicate the inheritance of vicious tendency, they can be explained as the result of continuous bad environment. On the other hand, instances are quoted of children of vicious parents who under the influence of a new and good environment have become useful members of society. ‘Dugdale’s general conclusion is,’ says Dr. Brend, ‘that, where the organisation is structurally modified, heredity is the pre-

pointments in a sufficiently large number of cases to warrant the proceeding with its attendant inconveniences. The most physically suited for union can be made acutely unhappy by a thousand things having nothing to do with their healths—in real life it is not Cinderella's lungs but her accent and her ignorance which spoil domestic life, and lead to differences of opinion about the management and future of the children which must have an unfortunate effect upon the next generation. In the absence of more precise knowledge, medical inspection yielding an unfavourable report might prevent marriages that would have brought content and healthy children in their train—how many perfectly healthy people of quite advanced age do we not know who can tell a story of a consumptive grandmother? Conversely, a favourable medical verdict might lead to a union the resulting offspring of which presented some wretched dyscrasia.

If doctors desired to institute any form of medical priestcraft, no more direct move could be made than to press for compulsory health certification previous to marriage. But the medical profession, having no such desire, recognises that the position of independent adviser is a stronger one than that of State certifier, though whether it is as strong to-day as it was formerly I doubt. In considering the status, in previous chapters, of the doctors of the early and mid-Victorian eras we saw that their opinions were delivered from a platform of authority which no longer stands.

To-day, therefore, the counsel of a doctor may not be taken as the last word on the subject ; and if this is so, to make him deliver that counsel, in the form of his signature to a legal document, cannot be prudent.

CHAPTER VI

PRIZES AND PERFORMANCES

The Significance of Prizes—The Real Professional Race—
The Race illustrated by Medicine—Some Figures from Three
Great Hospitals.

NOVELISTS have certain conventions in their treatment of intellectual success among the young, and brief biographies and obituaries, dealing with persons who have lived, observe corresponding rules. It would seem to be generally accepted that young students can be divided into three classes, the brilliant, the assiduous and the rest, and it is to the last class that the good things usually come in stories of adventure, and often in stories of manners, especially if the actor is what may be vaguely termed 'good-hearted.' Of course, in any school or college or seminary the number of girls and boys left, after the brilliant and the assiduous have been subtracted, will be a large proportion of the total, so that when the protagonist of adventure, or the exponent of manners, is found among the 'also ran,' the novelist has numerical probability on his side. But none the less, the implication in many stories is that the sweet-natured dolt represents the most likely material

from which the resourceful, the resolute and the courageous dealer with the facts of life will emerge. If that is a considered decision of the way that things happen, it amounts to a wholesale condemnation of the examination system, with its concomitants of scholarships, bursaries and prizes.

A similar attitude of mind seems to influence the writers of short lives of dead distinguished persons. The subject of the biography is very generally described as having shown either extraordinary promise when young, or steady ambition, and the rest of his career is made appropriately to fit into one or other preface. If he, or she, be a failure in the race for intellectual eminence or material success, the failure is attributed either to a want of staying power in the brilliancy or to some undue reticence associated with the plodding career. If, with due respect to those who write appreciations of their dead friends, we may suggest that these appreciations are to some extent works of art, it becomes an interesting subject of doubt whether the stereotyped form of piety is inspired by fiction, or whether the novelists have felt bound to divide their heroes and heroines into the classes which are indicated by the descriptions of authenticated lives. My suspicion is that many writers of biographies have been swayed unconsciously by fiction, and that the piquant dichotomy illustrated by, for example, Tom Jones and young Blifil, Charles and Joseph Surface, and Randal Leslie and Lenny Fairfax, has influenced their views.

Consideration of what happens in the medical profession reveals that success in after-life is found in large proportion among those whose performances as students have commended them highly to examiners and have earned them prizes.

All the year round, and in every class of academic, institutional and professional training, men are winning prizes, losing prizes, competing for prizes or scratching for those competitions ; and a system that is so universally in employment among us may easily become accepted in a mechanical way, and thus may cease to have a reason which appeals to judgment, and come to be regarded as one of those things that happen in the course of education. It is such frequent and general features in the scheme of life that pass unnoticed because of their very familiarity. If familiarity were all that were needed to grasp the significance of prize days, we should all know all about prizes—their uses, their abuses, and their relation to the spread of wisdom generally, and to the efficiency of students and scholars in particular. Our opinions founded upon such full knowledge should be unanimous, when there would be no need for any discussion. As a matter of fact, the value of prizes and their relation to further performances are subjects of constant debate.

For although we cannot conceive any system of professional training without prizes and their attendant troubles — namely, examinations — acquiescence in the principle of rewarding early

merit in examinations by gifts is not universal. Many persons may be heard to express opinions of opposite natures on the value of prizes, upon the systems under which they are awarded and upon the utility of examinations generally. Many of us have said that prizemen are too often found not to fulfil their early promise—it is one of those things that is repeated until its truth remains unchallenged. Yet it may not be true. Occasionally we hear of the insignificant future which some brilliant student has made for himself. We are told that the first mathematical scholar in our batch at school is an under master in a second-rate seminary ; or that the best classic of our year may be seen dozing away a valueless existence in front of a club fire, or using his recollections of the classical dictionary in an acrostic competition. My natural impulse, when these things are presented to me, is to recall old novels, and to wonder whether the reporter is under their spell ; for instance, I attribute a large proportion of the sad stories about broken-down classical scholars to one wonderful sketch by Thackeray.

Many of us, again, in congratulating a prize-winner, have said that in a world of stress and competition there is nothing like making a good start. And some of us have certainly said both things, suiting our words to the circumstances, and applauding the prize system when a success is in question, though belittling it out of condolence with the empty-handed. And the same diversity

of view is expressed with regard to the value of examinations as a test of present merit or as a guide to prognostications of future success. This we should expect, for those who profess to hold cheaply the winning of prizes must believe that the easy and rapid passing of examinations furnish no sure ground for future honour. Those who think highly of the prizes must think highly of the tests, for if the tests are wrong the merits of victory are gone.

There is, then, complete difference of estimate with regard to the value of prizes and the significance of passing examinations, and this is troublesome while our educational schemes are largely founded on the promotion of the prizeman and the nurture of the successful examinee. How can thoughtful persons be found uttering such opposite opinions? And observe that, whichever view we take, we all of us accept regular examinations and regular prize-givings as the most practical way in which education can be conducted, though when we are called upon to express an opinion concerning the matter we are not necessarily consistent. We take one side or the other—whichever one suits the particular case—congratulations or condolences coming with equal readiness from us, but we never suggest that education can be carried on to a practical end in any other way. Verbally we may be willing to sacrifice a lightly held conviction as to the value of prize-winning to a desire to be agreeable to some one who has not been a winner ;

but even then we are almost sure to endorse the principle of examinations and rewards by alluding to it as a time-honoured abuse—one of the perpetual sources of grumbling that we should all be sorry to lose.

This is really an admission that there is no way yet known to us of ascertaining whether students are up to a certain standard save by examinations, and that there is at least no surer way of stimulating the work of a group of students than by appealing to an honourable as well as to an inevitable spirit of rivalry. Further, we have the position that, while an important part of our educational system is regarded in two opposite ways by reasonable people, those who have the most to say against it do not come into the open with any alternative proposal. Their self-restraint is unhelpful.

Take the position of medical education as an example. Those who cry out most persistently against examinations and prizes as gauges of future success are regarding medical education as a thing which begins at a certain time and ends at a certain time—begins, say, with going to a boarding school and ends with the day when £5 is paid to the Registrar of Medical Education and Registration for the right to have a name placed upon the statutory roll of the medical profession. If this view of education be taken, it is easy not only to show that success in examinations is no certain gauge of success in life, but also that the whole

system of examinations and prizes is wrong. But medical education does not end with registration or qualification, with the obtaining of a commission or a diploma or a degree. There is no professional life in which this truth can be seen more clearly than in the medical life, in relation to which it is stark staleness to say that education never ceases, and that the longer the practice of the medical calling the more opportunity is there of learning, of testing that learning, and of obtaining its rewards. This, at any rate, is the fortunate plight with most men ; a few may get out of sympathy with progressive medicine as time goes on. They often began in a particularly brilliant way, and their later plight is analogous to the condition which the athletic trainer calls ' muscle bound,' where the muscles under excessive training in some given direction become hypertrophic, and lose their elasticity, reducing the quondam champion to a melancholy inertia. These unfortunate exhibitions of reaction are not often seen, but they account for much of the distrust which the examination system inspires.

In respect of medical training the divergency of opinion as to the value of prizes and of the associated examinations has become acute of late. It may be that in all professions there is a similar feeling that theoretical acquisition plays too great a part in technical training, but in the pursuit of medicine there are certain factors present which are not present, or present only in a modified

degree, where other callings are in question. (I think this is so, though, just as every one of us may believe that he possesses individual qualities, so it is possible for a member of any profession to believe that his calling is attended with individual circumstances.)

In a previous chapter the rapid evolution of modern medicine has been described, and it is clear that medical life under such changing conditions must constitute a progressive education throughout, and that as the practitioner's scientific information steadily increases in bulk, or regularly calls for sifting or rearrangement, so his personal relations with his clients will be modified. His career as a citizen, tax-payer and doctor will be altered in accordance. I cannot conceive that any other profession calls for such rapid changes first of theory and then of practice, compelling its followers perpetually to adjust what they think and do in the light of fresh events. New legislation is enacted to meet new international, national or social needs, but lawyers do not have to reconsider the principles of law, they have to adapt practice to circumstances. Relativity arrives, and interferes with our conceptions of gravity; this is fundamental enough, but the practical work of the engineer or of the architect is not affected thereby. But when the anti-septic doctrines are introduced, medicine is changed from top to bottom, and the life of the doctor reacts to the change; and so does the

record of public health. When the interplay of parasites and disease is unravelled, tropical pathology is discovered, and a whole system of additional education is postulated for medical men who have long been absent from educational centres. Comparable events do not occur in other professional lives. The position is illustrated by the fact that in every scheme for the improvement of medical education, in every plan for the reform of medical practice among the people, and in every development of the university faculties of medicine, provision is being made for post-graduate teaching, in order to help the medical practitioner in that after-education which will lead him on throughout his life.

Modern conceptions of medicine are such that all men, in whatever walk of life they are practising, feel that their life is one long education, and that what they have learnt in the past may be regarded as an introduction to what they are likely to learn in the future. No profession opens so many paths as medicine of a totally different sort, though they all converge to one objective—the discovery, maintenance and practice of truth ; and, as a consequence, this feeling that the whole of professional life is one long course of education appeals to medical men with particular force. The colonel feels it as well as the medical officer of health ; the operating surgeon shares it with the consulting physician, the bacteriologist and the bio-chemist ; while to none can it come more home than to the

general practitioner, whose five-hundredth case of whooping-cough may give him some practical hint for the relief of a certain symptom met with in a certain type of case. Alas! that we do not get these valuable experiences recorded in any regular and systematic manner. The note-books of a general practitioner, now that the educational level for entering the medical profession is so good, would make most valuable reading for his colleagues; but the translation of their message from the private to the public—the collation in any public manner of things in themselves so often shrouded in professional secrecy—is a matter of such difficulty that at present the clinical experience of large numbers of the medical profession is but little exhibited for the instruction of their colleagues.

The winning of prizes and the passing of examinations mark the results of education at one stage of a long race—the earliest stage of that race. Those who look upon education as a short race, starting in the case of the medical man with his school curriculum and ending with registration, and consider the professional life that follows as a long but completely separate race—another item on the race-card—will hold on the soundest of sporting grounds that the man who wins the sprint need not win the staying contest. And it is in support of this self-evident proposition that we have quoted to us the instances of the various failures in after-life of men who vastly flattered their friends and

tutors at the outset of their careers. Those who regard education in a more comprehensive sense, as one long event beginning with the dawn of our consciousness and ending only as our senses and powers fail us, will regard prizes and success in examinations differently. They will see in them proofs of good training, and evidence that the competitors are trying their strength and endeavouring to run the course with judgment ; and they will appreciate after-successes in life at different stages in a long race with due respect to the way in which the whole track is being covered. Regarding education in this comprehensive way, as medical men must, we find that the two contrary acceptations of the value of examinations and prizes become at once reconcilable. Examinations and prizes have their place in the medical educational scheme, because they are necessary to determine that no one shall enter the profession who is not so far educated that he can take full advantage for his own benefit, and notably for the public benefit, of the greater tuition which is to proceed for him during the rest of his lifetime. Examinations are a means to this end and no more ; prizes are an incentive to this end and no more. Their purport being so good—namely, the standardising up to a proper level of the knowledge of those who enter our ranks—we ought to be very sure of our ground before we abuse the means or the incentive. But while we must recognise that examinations in their place are not only

necessary things, but good things, we are not obliged to acquiesce in their endless and vexatious multiplicity. And those of us who admit that examinations are a valuable and, in fact, the only way of testing our young men, may also, and without inconsistency, deplore the present tendency of the medical curriculum, the strictly student's curriculum, which leans towards over-examination. The system is too hardly worked, because of the unfortunate feeling that all the modern developments of medical science, general and special, laboratorial and clinical, ought to be represented in the examination papers. The mesh of the net spread by the examiners has become too delicate ; they catch in their elaborate toils too many. We need not commend the multiplicity of examinations any more than we need lay too much stress upon them. The indication for future action cannot be misread ; post-graduate education in medical studies should be developed generously.

There is an old story of a senior wrangler who happened to enter a playhouse at the same time as King George III. on the evening when the few newspapers of the time had chronicled the scholar's success at Cambridge. The senior wrangler solemnly bowed to the audience before he sat down, believing that the national anthem was being played out of compliment to himself. Inasmuch as we must all find that senior wrangler ridiculous, the story contains in itself an exact illustration of the points which I have been labour-

ing. In Georgian days a senior wrangler was a made man. There was no need for him to do more. His college made him a Fellow for life, and he became its master, or a bishop, or a judge, or did nothing, just as he liked. We see how foolish it was, but in times much nearer than those of Good King George it was perfectly in order for the successful scholar not to try to do anything more ; and Thackeray's university snobs, viewed in this light, were not failures so much as victims of a narrow view.¹

I am aware that here I am on somewhat delicate ground, as I may seem to be regarding knowledge pursued for its own sake, and with no materialistic proposal, as of little account. I may seem to slight the erudition of a Porson prizeman who is no longer a made man because of his dexterity in iambics. This is not my desire at all. The subtle classic and the transcendental mathematician have a place in the scheme of our education in the broad humanities, and that place is, I think, comparable to the one occupied by the elaborate bio-chemist or statistical eugenist in medicine. Their knowledge is required by us as a reinforcement of ordinary learning, as a proof of its basis, as an index to the direction of its expansion and—greatest duty of all—as inspiration for our progress. If such learning could be regarded as a thing apart we should have the right to ask what it is for, but no

¹ Part of this chapter formed an address to the students at St. George's Hospital on a prize-giving occasion.

thinking man should take this huckstering view. It is unfortunate that the highest ranges of philosophical research seldom bring their due return in money, and that their devotees must largely depend for reward upon the sweetness of their labours, the keen and splendid delight in the exposition of rare wisdom.

‘The mountain sheep are sweeter, but the valley sheep are fatter,

We therefore deemed it meet to carry off the latter,’

sang the marauder. He was a wise man within his limits, for he knew what he wanted; but he was a marauder, and the triumphs won on the bleak mountain-top, though lean when viewed from a financial aspect, have a flavour of their own compared to which the more material victories of the valley are insipid. In the commercial world, where men are engaged in what Henry James has termed ‘the horrid vulgarity of getting in or getting out first,’ the creation of interests is too often intended merely to extinguish other interests. In the world of medicine the gains of one man are used for the good of all, and the supreme type of this altruism is the worker in the higher planes of research. Here, especially in this country, those engaged are far away from the pleasures and lures of tangible prizes. Unless the philosopher can by his learning show the capitalist or the shareholder how to transmute baser material into gold, it is little enough gold that he will get in return for his toil. And this is not because the exponent of academic

wisdom is necessarily a visionary, but because the application of his researches is never quickly obvious to a nation that is still in the ancient attitude regarding education—a nation which still believes that education is something like measles, which you get young and get done with. To such the man who continues in the laboratory or the library appears to be a sort of permanent invalid, removed by a malady of interesting duration from connection with the real problems of life.

It is to my mind one of the greatest glories of modern medicine that we have taught our generation, as far as medicine is concerned, a truer view ; for the whole story of pathological progress, which has been so striking during the last thirty years, may be summed up in the statement that scientific research of the highest and broadest kind in physics and chemistry—in which is included physiology—has been made to play a part in practical medicine, therapeutic and preventive. But although the profession of medicine is showing the way by which in its workaday proceedings the finest flowers of its philosophy can be gathered and used, the fact remains that prizes—material prizes—come no more in medicine than in other walks of life to the actual exponents of that philosophy. The simple way in which this great wrong could be in part set right would be by some wider endowment of teaching. Into the hands of the leaders of our thought falls the duty of teaching our students, but the duty is largely discharged as a

gratuitous one. The shortsightedness and false economy of encouraging students freely with exhibitions and scholarships, while making scanty provision for those who teach them, is simply an exhibition of the old and narrow view of education. The successful student is rewarded with prizes at the end of his first lap—if I may be allowed to harp on an obvious simile ; let him rejoice and be glad in them, for assuredly his strictly academic career will bring him few more emoluments. But it is an absurdly wrong policy which leads wealthy and generous persons so much more frequently to found scholarships for the students than lectureships, readerships, fellowships and professorial chairs for the teachers. Both are wanted, but the needs of the instructed always appear in this country to appeal much more powerfully to donors than the needs of the instructors—a position which seems not to obtain in the progressive educational centres of the United States. Why expect that the highly endowed student will receive adequate instruction if we fail to endow his masters ? The course of education is a long one. Those who once were the taught become the teachers ; they have the right to expect some continuance of the encouragement which they received at the early stages of the race.

Prizes standardise candidates, reward industry and intelligence, and stimulate study. They do great good to those who do not get them ; they persuade those people, often unconsciously, to do

better work. They raise the general level of learning by forming a direct object for assiduity. The fact that those who win prizes at the beginning are not always those who do well afterwards has had too much stress laid upon it. The men who make a good start do to a great extent throughout life enjoy the advantage of that start ; when this does not occur it should be remembered how long the race is.

A humorist has said, with regard to the success of a lady of fashion, that she progressed in comparative degrees : first she got on, then she got honour, and then she got honest. The process by which success is achieved in the medical profession is reversed, and all three degrees of comparison may never be reached. First, the student must be honest, then he may get honour ; and lastly, though it does not follow, he will get on. And it is not so perfectly easy to be honest at first, for the medical curriculum is an exceedingly strenuous test. There is a multiplicity of subjects to be dealt with. There is confessedly inadequate time within which to acquire more than the rudiments of any of them. There is therefore an enormous temptation before every student to slur over the difficult parts, to quote in parrot-wise the phraseology of others, and thus to clothe personal nakedness. The very scope of the schedule within which examination questions may be set makes the neglect of numerous subjects a matter of no great risk, and many a man has left out whole slabs of

a text-book with a fervent hope that 'we shan't get that in the paper.'

For the student to resolve that, come what may, he will understand what he sees, what he hears, and what he reads before he proceeds to the next stage in his education entails upon him a rigorous process of self-examination which constitutes the finest kind of honesty. Success in examination may follow, proving that the student is learning to know himself; that he has subdued a natural tendency to go in the direction of least resistance, and can attack and master allotted tasks. If prizes also occur they indicate proper preparation for evolution—nothing more, but it is much. The rest is on the usual knees. If the evolution takes place in true, scientific shape success will be deserved, but it cannot be commanded.

As far as the medical profession is concerned—that is the profession to which in particular everything which has gone before has reference—we have the results of three inquiries, small and limited, but useful because of their limitations, into the future careers of three sets of medical students. The three sets cover the ground of the last fifty years, and the students in question were connected with St. Bartholomew's, St. George's and St. Thomas's hospitals respectively. To a certain extent these inquiries indicate how far early success has contained a faithful promise.

In 1869 Sir James Paget undertook, with the

assistance of a colleague at St. Bartholomew's Hospital, an investigation into the chances of the medical student as shown by his subsequent career. The investigation resulted in the publication of figures showing that a medical student had at least as good a chance of worldly success as a lad embarking in any other career. Sir James followed up the lives of a thousand medical students who had joined the medical school of St. Bartholomew's Hospital, with the following result. He found that 23 had met with distinguished success, 66 with considerable success, 507 with fair success, and 124 with very limited success; 56 had failed, 96 had discontinued medical studies while in pupillage, 41 had died during pupillage, and 87 had died too young for any one to say whether they would succeed or no. The value of these figures depends, of course, upon the meaning of the classification.

Sir James Paget defined 'distinguished success' as the attainment within fifteen years of qualification to a leading position in practice in great cities, to a scientific professorship at a university, to a place on the staff of a large hospital, or to the tenure of some important public office. He ascribed 'considerable success' to those who gained high positions in the Services—by which he meant the Naval, Army, and Indian Medical Services—who obtained good provincial and country practices, or who enjoyed more than ordinary esteem and influence in society—the

last being a very vague category. 'Fair success' he defined as being in the possession of a practice sufficiently large to maintain a professional man in adequate style, or the tenure of an advancing position in the Services, and in the Colonial Service, which fifty years ago did not offer a promising career. 'Very limited success' he assigned to those who never attained to moderate good practice, but who were able just to maintain themselves by their work either as principals or assistants. Of the 56 who failed 15 could not pass their examinations, 5 were convicted of misconduct, 10 were dissipated both as students and afterwards, and 10 had bad health. The remainder were known to have come to grief without any particular reason being assigned for their misfortune. It will be seen that out of the thousand students 41 died during pupilage, and must be left out of count. Again, the 96 who discontinued their medical studies while in pupilage can hardly be brought into calculation when we are considering the chances of making a livelihood out of the practice of medicine. They cannot be said to have failed in a medical career, as they never attained to professional rank. The fact that nearly 10 per cent. of the thousand students left the profession during their studies is not without significance, as it would seem to imply that the medical profession was not one to be undertaken lightly even in the days when examinations were comparatively simple and infrequent. The 41

who died during pupilage, and the 87 who died before they had been in practice twelve years, were also debarred by sad fate from obtaining any position in their profession, and they can be left out of calculation for practical purposes. We have, then, 776 students to consider who actually reached practice, and of these 507, or about 66 per cent., attained to fair success. These are the figures that we must look at when we try to frame our opinions as to chances of the medical career. How far those who met with conspicuous reward began by prize-winning Sir James Paget did not record.

Some fifteen years ago it occurred to me that with the lapse of time and the alteration of conditions Sir James Paget's figures might no longer give a true picture, though they were still quoted. Accordingly permission was obtained from the dean of St. George's Hospital to make a brief investigation into the careers of a group of students who had been entered for education at the medical school of that hospital. The year 1879 was chosen, and what happened to the first 250 students who entered after October 1st of that year was ascertained as far as possible. Of the 250 students, 187 qualified, and 63 did not qualify. Of the 63 who did not qualify as medical men, 2 obtained places on the Dental Register without diplomas, and succeeded, and 2 died as students; 1 became decently successful at the bar, 1 became a veterinary surgeon and obtained credit in that

profession, 1 accepted a purely scientific post under Government and rose in his department, 1 became an artist, 3 went on to the stage with no success, 2 enlisted in the army and both obtained commissions, and 1 became proprietor of a boarding-house. Four of those who gave up the struggle were men of private means, to whom the practice of a profession was not necessary as a livelihood. Of the remaining 45, 15 of them never showed the least aptitude for medicine. Of the 187 students who qualified, 9 may be said to have met with distinguished success as defined by Sir James Paget, 5 of them secured, after more or less waiting, positions on the medical or surgical staff of their own hospital, and 2 became teachers at the hospital ; 2 others are on the staff of large general hospitals in the provinces ; 45 have met with considerable success in practice, they hold good appointments, have earned a strong local position, and are respected prosperous citizens ; 25 obtained commissions in the Services, 19 in the army, and 6 in the navy ; and of these 2 distinguished themselves particularly. Of 56 men who went into general practice in England, including 5 who practised dentistry, it was learnt that they were practising in a manner compatible with a professional position ; out of 9 who went abroad 2 were distinctly successful. Five men who obtained medical qualifications left the medical profession, of whom 1 became a journalist, 1 became an actor, 1 went on the stage, and 2 had private

means. Six qualified men came distinctly to grief, of whom 2 went to prison. Twenty-three men died before they had been qualified twelve years, and must be disregarded in making any estimate as to the chance of success by the practice of medicine. Of the rest, about 12 per cent. of the total, it was not possible to learn anything.

The following are the figures dealing with a total of 250, which can be compared with Sir James Paget's figures dealing with a total of 1000 :— 9 met with distinguished success ; 45 met with considerable success ; 25 met with fair success in the Services (two of these might be included in a higher class) ; 46 met with fair success in practice ; 5 left the profession after qualification ; 6 discontinued medical study as pupils ; 2 died during pupilage ; 23 died within twelve years of commencing practice ; and 6 failed entirely. Liberality has been shown in awarding places in the higher classes, but if we add the 'considerable' and 'fair' successes together we get by the combination a section of 116 men out of 187. That is to say that the figures, like Sir James Paget's figures, though with much less certainty because of the smaller range of the investigation, go to show that 66 per cent. of qualified medical men from one metropolitan medical school had reason to be satisfied with their professional careers. Of these men a large proportion of the successful practitioners had been successful students.

The tale has been continued with the publication by Mr. Edred Corner of similar information derived from going through the lists of students at St. Thomas's Hospital for the decade 1890-99 inclusive. He found Sir James Paget's researches into the after careers of St. Bartholomew's men half a century previously to be corroborated by what he found at St. Thomas's. The following are the several points which he considered worthy of notice. His full article, from which I quote substantially, appeared in *St. Thomas's Hospital Gazette* for March 1921.

'Sixteen per cent. to seventeen per cent. of hospital entries are students joining for some special reason, *e.g.* a qualified man coming for attendance on the hospital practice. This group has none dropping out from it, and constitutes what may be called "the birds of passage." Men again enter the profession and drop out of it from a variety of motives such as circumstances of home, man or future. It is easy to see that such defection must be present in any profession with a curriculum of five years. This is a very definite percentage which parents entering their sons for the medical profession may well bear in mind. It is one in eight or 12·5 per cent., if the "birds of passage" are considered, and one in six or 16·7 per cent. if not.'

'Parents and advisers should remember also that there is a considerable mortality in those entering the medical profession. It begins, but

hardly shows itself, in the first year. It increases in the second and third years, to reach its maximum in the fourth and fifth years. It continues after the student has become a duly qualified doctor. It is about 2 per cent. and the greatly predominant cause of death is pneumonia, suggesting an infection picked up in the post-mortem room or wards, increased by overwork, draughty corridors, inherited weaknesses or improper nourishment. It forms a plea for a residential college where such factors can be minimised. There is no such mortality amongst the "birds of passage," suggesting that it is the student who picks up infections.'

'Yet another thing stood out: how often the scholar and prizeman did little in after life and how often the very ordinary man went ahead and grew great. This fact is a distinct encouragement to the ordinary man.'

'Two points of interest to parents, deans, and schoolmasters are, that every year about eleven men entering hospital will drop out from work in the profession and about two will die. In every year 87 per cent. of students persevere and get qualified. These figures are derived from a study of nearly nine hundred entries spread over a period of ten years.'

'In the St. Bartholomew's 1000 students, rather more dropped out from preparing for the profession than do nowadays—15·2 per cent. against 12·5 per cent.'

Too much stress need not be laid upon any of the foregoing figures. That figures, particularly if large deductions are attempted from small data, can be made to prove most things is illustrated in many controversies, and it is safer to claim proof for as little as possible through their agency. But the figures can fairly be used as replies to two vague but common assertions : first, that the medical profession is overcrowded ; and secondly, that in following the medical life the game is not worth the candle. These two statements have been made so often that they are beginning to receive unquestioned acceptance. As a matter of fact, the medical profession in England, Scotland and Ireland is not overcrowded so much as badly distributed. There are places where medical men are sorely needed and where they would be found if the conditions were fair ; there are large districts where medical work is waiting to be done until proper arrangements have been made for doing it. When the administrations of the Poor Law and the Sanitary Medical Services are considered, as well as the warrants of the Naval, Military and Air Force Services, and the conditions in the Colonial Medical Service, it will be seen that the openings for successful professional life before the medical student are numerous and varied.

Secondly, the percentage of medical men who reach a good and stable position through professional practice disproves the view that the medical profession as a whole is wrongly paid. But the

figures must not be taken to show that there are no grave professional hardships. In all three cases they refer to students at first-class London hospitals, students of the class who enter the profession with good introductions and whose natural sphere of practice presents the maximum of opportunities. It would be possible by selecting students of other schools to obtain somewhat different results, though not results that would contradict the general inference that by comparison with other callings the medical profession promises much.

Mr. Corner, out of his knowledge of the meaning of the figures from St. Thomas's Hospital, remarks that the scholar and prizeman often did little in after life, while the ordinary man went ahead and grew great. His experience runs along the lines of fiction, but I doubt whether the deans of many medical schools would confirm it. The failure of a prizeman, and the unexpected success of one who for a time remained in the ranks, form little events that are chronicled and made much of, until their numerical proportion becomes inflated. In the case of the figures from St. George's Hospital the majority of the men who got into the top class within twenty years of the start began by being successful examinees, and often were prize-winners.

Conventions have been laid down by novelists and supported by biographers (unless the novelists have copied the biographers) under which, all

young people being divided into the brilliant, the assiduous and the rest, success in life goes to the third class : the thesis is that the conventions do not hold good as far as the medical profession is concerned.

CHAPTER VII

SOME PUBLIC DEVELOPMENTS OF MEDICINE

Medical Standards after the War—The Ministry of Health—The Great Ideals of Ninety Years Ago—Disraeli, Gaskell, Kingsley and Dickens as Sanitarians—The Modern Outlook of Medicine.

WE have considered a few facts and fewer figures from which to arrive at the general chances offered to a young medical practitioner of success in his career ; recent modifications of medicine as a profession indicate that the public is more intimately concerned than it can ever have been before in seeing that good work shall command good results. Legislation is admitting now in every way the claims of the public to be associated with any exhibition of medical authority. What follows here is an attempt to show why such an association will be fruitful in good.

At the outbreak of the War the world was full of the cries of men who had, and of men who believed that they had, powers of organisation. The number of these who subordinated their concrete claims for work done to their abstract claims as possessors of the gift of managing men was large ; and while there is no suggestion here that those to whom the various tasks of organisation were allotted failed

in any general way to acquit themselves satisfactorily, the fact remains that in some directions there was vast muddling.

The record of our armies as a whole in the matter of health proves to demonstration that the majority of those directing, and practically all those who were carrying out directions, were fitted by their administrative powers and their devotion to duty for their various positions, though there were well-known break-downs ; but other departments of our multifarious activity did not come out of the ordeal with so much credit, and revelations of mismanagement in the highest places give us good reason to believe that a burden of debt will for long keep green the memory of shortcomings. It is certain that some of the things, which we now know happened, would not have happened if organisation had been left more in the hands of men whose claims were tried, and less in those of persons who were able to make us share, on insufficient grounds, their belief in their own powers.

There is an immediate warning here as far as the profession of medicine is concerned, and the warning is not only to that profession but to the whole public.

For as at the outbreak of war the welkin rang with the claims of the organisers, now it rings with the claims of the reconstructors. Just as persons whose experiences were limited to the management or neglect of their private corre-

spondence, and the filling up of their income-tax forms correctly or otherwise, were allowed to represent themselves as defenders of our persons and our purses in phases of the World War, so there is danger lest the speculative Utopian should obscure our designs for the restoring and rebuilding of society, producing a mass of ill-digested schemes, whose details obscure their scope and whose plans would not accomplish their purpose. New Government departments are undertaking new tasks with every intention to restore our damaged fabrics, to extend them in wise directions, and to make the government of the country represent more nearly than it ever has yet a consensus of the opinions of an educated nation. These departments are infused—no one doubts it—with the will to do good, with the intention to make the world a sweeter and more orderly place, but their work is not assisted by the vociferous thrusting upon them of patent plans for making people happy or patent receipts for control without coercion. There is, roughly speaking, only a certain amount of happiness to go round, as there is only a certain amount of freedom available for society. To grant to one class the freedom and happiness that it demands may depress and degrade another class, so that a Government yielding to strenuous representations in one and another direction may find itself, while loudly acclaimed as a liberator, equally loudly condemned as a slave-driver. The course

of practical progress in every branch of social politics has to be mapped out with an eye on the public good, and the opportunism that gives a ready approval to ill-considered demands will only avoid the difficulties of temporary criticism to find itself landed in a slough of desperate commitments. The reflections are obvious but pardonable, because at the present moment the reconstruction of the profession of medicine is being undertaken, for the good of the public, as it is being demanded, for the good of the profession, by many doctors and medical alliances. It is for the common weal that the new order of things should be orderly, and that no new policy should be embarked upon without a reason that has a wide application.

Union both of idea and of policy between medicine and the public is being sought for and is earnestly needed. There is a vast field for all joint effort, and a dreary prospect where co-operation does not run. All over the world the pangs of the Great War are still being felt ; wounds are open and recent scars are contracting. In tortured Europe serious epidemics are of constant occurrence. Whole populations are going short of food and fuel, and there are prognostications that we may have ourselves similar trials to face, despite the comfortable feeling that for us the worst is over. Meantime our social changes bid fair to be rapid, and the man who would hasten slowly, desiring to see where he is before insisting where

he will be, has to defend himself from charges of apathy. In these anxious days medical men have had their reconstruction processes to some extent focussed. A new bureau of first-class importance especially charged with the care of the health of the nation has been created, and it is committed to make such changes in the professional life of the medical man as shall fit best into a profoundly altered scheme of things. The position of the medical profession, therefore, is that there lies before it a vast amount of work, much of it new and hard, and it will have to be done in new and doubtful circumstances. But of these circumstances it can be added that there is now provision for mutual understanding between the employing public and the employed profession, and this should imply a removal of many obstacles to harmonious progress.

Before the War laziness or want of imagination on the part of employer and employed—the laziness was mostly on the side of the public—caused many necessary wants of the medical life to remain unprovided for. The medical profession was little, if at all, to blame for the fact that admirable work in public health, prevention of tuberculosis, control of venereal diseases, inspection of school children, care of nursing mothers, and domestic visitation of hospital patients, were all better arranged in theory than carried out in practice. Many members of the medical profession laboured enthusiastically along these different

lines with small recognition from the public, which did not understand the reason for the activities or their object. While many members of the public gave devoted gratuitous service to supplement medical efforts, the mass of the people remained indifferent, because not understanding. This was when we had time and money. When the War broke out, its long duration and its drain upon medical resources were not anticipated, and now we are left in considerable arrear with what was already a low average of public performance.

Now all the work has to be taken up in a scheme of society that differs in many respects from anything previously experienced, and under the aegis of a Government department which is still in its swaddling clothes. It is natural, therefore, that schemes should burst forth of various value and with various main objectives, according as those who father the schemes are more interested in one than another of the many causes which require championing, and of the many reforms which require carrying out.

In this conflict of reconstruction the errors that were made during the War, in response to the stress of hurry, ought not to be repeated in respect of the public health of the nation. Certainly let there be no undue delay, but better a little delay occupied in genuine investigation of all the factors at issue than a hurried policy of panic. The general plan for a real union of public and professional interests will evolve from the activities of the

Ministry of Health if patience and tolerance are used, while their use need obscure no fine ideals. The Ministry of Health has come into being because all the questions embraced under the word 'health' have grown insistent for answer—insistent on public grounds—and delay is only recommended in regard to detailed procedure. There certainly should be no hesitation about the immediate desire to act, though in a sense the suddenness which characterises military decisions is not called for. But disease is every whit as much an enemy as any armed power can be, whose onslaughts do not wait while counter measures are being devised. A massed attack of influenza is a more rapid as well as a more widespread danger than any military onslaught ever devised by a potentate. If fuller use is to be made of medical science, not only for the treatment or the prevention of disease, but also for the education of the public in right ways of living, of working and of playing, the medical profession as a whole requires some of the reorganisation which is foreshadowed in the Ministry of Health; and, as will be seen, it is the medical profession itself which showed the need for a Ministry of Health by demonstrating that to sound medicine the public must look for national salvation.

The Ministry of Health is the outcome of a wider recognition of things as they are, and not, as some very eloquent persons would have us believe, a panic-stricken crusade against overwhelming evils.

We must all allow that there is plenty of room for reform in the public and domestic health of the country. The present industrial conditions have an obviously evil influence on the normal expectation of life, as can be guessed by figures taken from the Registrar-General's publications. Of those who survive fifteen years of age, the average period of life among agricultural workers is sixty-seven, while among purely industrial workers it is just under fifty. Again, recruiting statistics have shown that in several trades half of the workers, by the time they have reached forty years of age, are unfit for military service. In many occupations over a third of those employed receive sick pay for some period in every year. The deaths from tuberculosis in this country are about 70,000 each year. As a proportion of those deaths have certainly been brought about by war conditions, whether among the combatants or the non-combatants, it is a risky statement to say that more people died from tuberculosis than from the War during the period of hostilities; but the statement is regularly made with the appalling experiences of the World War before us, and made so seriously that it must have a foundation in fact, though the deduction may be challenged. There is a wide prevalence of venereal diseases, and the infantile mortality in some of our large cities is appalling. No figures here are quoted, because they vary so widely and on such different grounds that the average percentages convey nothing that

has a local application, while it may be a local remedy that is wanted in the medical view.

Now, no one wants to make light of circumstances like these, and if it were because of them, and because of them only, that a Ministry of Health was required, it would be clear that the Ministry was a piece of panic legislation. And as a rule sudden and belated determinations to deal with widespread evils do not present a promising outlook. It is thus a good omen that the Ministry of Health should be the natural evolution of a great deal of sound public health policy, statesmanship, accomplishment and endeavour which have marked the social history of this country for two generations. It is a co-ordination of efforts which have borne admirable fruit in many directions, and to some extent it is because of the success of those efforts that the knitting together of their activities and a removal of overlapping in performance were necessitated. The medical profession has much to answer for in the muddle that exists, but it is its virtues and not its faults which have brought the position about.

The era of sanitation, as we now understand it, and for all practical purposes the whole of our modern system of preventive medicine, dates from sixty years ago, founded though our wisdom is on the wisdom of our ancestors and even of preceding civilisations. During these sixty years scientific knowledge has developed to such an extent that it has driven State organisations hither and

thither in the attempt to carry out the medical ideal—or to avoid carrying it out, as the case may be.

The sanitary conscience, however, awoke many years before preventive medicine was in a position to intervene usefully. Some ninety years ago the social and economic conditions in England, grievously affected by the Napoleonic wars, produced a feeling that the health of the people ought to be a national care. That feeling, as we know, took outward form at first in what we should to-day consider a highly unphilanthropic form, for such laws as were made were mainly intended to confine the ills of the poor, as far as they were the outcome of disease, to their places of origin ; prevention was not mentioned, although there may have existed behind the rough machinery of segregation a consciousness that eradication of the ills, rather than a lopping of their branches and a topping of their shoots, ought to be effected. The need for making the health of the people the care of the State had become obvious, but only those who could read with sympathetic heart the signs of the times grasped the significance of the conditions in which a large proportion of the population were struggling ; and the legislature found the removal of those conditions to be beset by the difficulties everlastingly associated with the alteration of established customs or the restriction of vested interests. The science of medicine had not acquired a familiarity with the etiology of disease

that could enable its professors to preach the doctrines of prevention with sufficient authority either to arouse the public conscience or to reinforce the voice of reform. And so in 1834 the Poor Law Commissioners, perceiving that ill-health was a principal source of pauperism, and knowing that the removal of the causes of ill-health would be a more righteous proceeding than the treatment of its consequences, could none the less conceive no course open to them save remedial treatment, in an economical way, of those whose ills were already past remedy.

What the medical profession thought of the Poor Law and its amending Act of 1835 was chronicled in the *Lancet* at the time, and in language that would make this politer age squirm. The medical criticisms were, to the credit of all, directed mainly against the neglect of public health, though resistance was urged on the personal ground of injustice. For example—one among many—the Memorial from the Practitioners of Buckinghamshire, dated August 5, 1835, showed well the feelings aroused. Herein the memorialists expressed their concern that no efficient medical aid was secured to the poor in sickness under the Act, and they submitted that the medical proceedings of many Boards of Guardians must terminate in inconvenient appropriation and inadequate division of medical duties, ending in fatal consequences to the sick. They begged that the new Commissioners would reconsider the subject and

direct such regulations as would be beneficial to the sick poor, satisfactory to the public, and just to the medical profession. The general feeling of the medical profession was justified later. The times bore a great resemblance to those we live in—this will not be pointed out here, from a partial acquaintance with social history, because the parallel is now being drawn by many expert pens ; but, historians apart, the pages of some of our greatest novelists show that in all the domestic disorder, often of the bitterest sort, that raged round Chartism, the Corn Laws and the foundation of Trade Unions, the inadequate care of the health of the people was the most telling argument employed in favour of reforms. Disraeli and Dickens, Gaskell and Kingsley can all be quoted as showing the appalling conditions among the poor between 1835 and 1855 ; the ill effects of all measures, whether of remedy or repression ; and, lastly, the manner in which the interplay of poverty, industrial conditions, over-quick reform and apathetic conservatism produced physical ills of the worst description.

We get in novels, published when the evils described were actually upon the nation, or barely subsiding, more moving pictures and more arresting warnings than we can construct for ourselves by the consultation of blue-books or biographies. *Sybil* was written in 1845, and contains chapters whose force and spontaneity prove the claim of the author that the descriptions of the condition

of the people had been written from personal observation. The vigorous sketch of the little town of Marney is a whole indictment of the sociology of the period, and the humorously extravagant pedigrees of the Egremonts and the Mowbrays must not alter our estimate of the more serious things in the book.

When Disraeli was pointing out that in fiction first the Turkey-merchant, then the West India planter, and then the Nabob had figured as the examples of the new rich, to be succeeded by the loan-monger, and, lastly, by the wealthy manufacturer produced by long wars, he was thoroughly enjoying himself, and never more than when he was showing how these characters had gradually merged into English aristocracy. But while nobody to-day would quote him as an accurate authority on the rise of great families, he can be adduced as a sound chronicler of the popular misery of the times. *Sybil* contains pictures of the conditions of the poor under the Poor Law which can be verified over and over again by medical history.

Kingsley, as 'Parson Lot' and the author of *Yeast* and *Alton Locke*, told in burning language of things which he knew; they were occurring in the forties and fifties during a period when he was in intimate touch with all the movement of the Chartists as they developed into trade unionism and co-operative societies. His description in *Alton Locke* of a tailor's work-room, given in the

words of a worker, shows in a few horrifying phrases the sort of thing against which preventive medicine had to work in its early days :—

‘Concentrated essence of Man’s flesh, is this here as you’re a-breathing. Cellar work room we calls Rheumatic Ward, because of the damp. Ground-floor’s Fever Ward—them as don’t get typhus gets dysentery, and them as don’t get dysentery get typhus—your nose’d tell yer why if you opened the back windy. First Floor’s Ashmy (Asthma) Ward—don’t you hear ’um now through the cracks in the boards, a-puffing away like a nest of young locomotives? And this here most august and upper-crust cockloft is the Conscrumptive Hospital.’

This is an unexaggerated delineation of the horrors which a growing sense of the value of preventive medicine has abolished by gradual relays of legislation.

Mrs. Gaskell, in *Mary Barton : a Tale of Manchester Life*, published in 1848, disclaims all knowledge of political economy or the theories of trade, but her description of the state of living among the factories in Manchester conveys a medical message worth fifty disquisitions or political creeds. To the work of Dickens as sanitarian no detailed reference is necessary, but from almost his first novel, *Oliver Twist*, to almost his last, *Our Mutual Friend*, he was the champion of the cause of the sick poor against mistaken State action. Other well-known novels worth reading for the light which they shed on a sad and puzzling epoch of national history are Charles Reade’s *Put Yourself in His Place*, full of

fine writing and moving adventure, but often terribly foolish ; and John Saunders's well-known novel, *Abel Drake's Wife*. Both these stories appeared in the same decade, the former in the pages of the *Cornhill*, the latter under the imprint of the *Cornhill* firm, and are rather reviews of past abuses and denunciation of strike methods than appeals for better sanitation under a properly organised State system of public health. Still the appeals underlie the message delivered ; and when Mr. Stanley Weyman, in a novel which recently appeared in the *Cornhill*, desired to draw a poignant episode in the miseries of the poor at the beginning of the Victorian era, he selected the haling to the workhouse of a helpless woman whose son had died of fever. The poor in those days knew well what a poor-law infirmary meant, and so did the medical profession, to whose efforts later the vast improvements in these institutions are largely due.

It is not claimed, however, that the public was the villain and medicine the hero of the tragedy. Medicine was not provided with the necessary knowledge to assist Governments in any large policy of a preventive character at the time when the Poor Law came into being. That reproach is now removed. During the last century medicine, striding forward to accurate knowledge, became first an official and later an inspiring counsel for further effort, when sections of the community awoke to the fact that by sanitation there could

be removed barriers to their health and happiness which were remaining erect with no better apology than might be found in their antiquity. As each section was roused it made its claim for relief heard, with the result that the remedy best fitting the circumstances was applied. Schemes of reform, initiated in this haphazard manner, were entrusted for their carrying out to various departments of Government and various local authorities, with a consequent overlapping of jurisdictions and waste of energy and money, while the resulting confusion was worse confounded by the creation of new Government bureaux and the rearrangement of local administrative machinery. It is the rapid increase of medical knowledge which has been the reason for such facts as that, before the invention of the Ministry of Health, no fewer than eight first-class Government bureaux had charge of medical affairs. Medicine demanded the innovations ; various Governments, having no uniform plan, met the demands by putting the burden on the nearest available back. The outcome was to make the care of the health of the people, as conducted in this country, a magnificent and illogical muddle, in which fine ideas and accomplishments, many of which elicited the envy of modern civilisation, were blended with the opportunities for extravagance and dissipation of strength inevitably associated with the want of a central plan.

And sometimes, when the course taken by the

State has been perfectly logical, the result has appeared to the public particularly comic. For instance, one of the eight governing departments which, previous to the creation of the Ministry of Health, had charge of medical interests, was the Privy Council, to which the Midwives Board owed allegiance, and much merriment has been expended over the droll bedfellowship of the Lord President and the Gamp. Yet it came about in the most reasonable manner. The Midwives Board was created to be the authority for the registration, education and discipline of midwives, as the General Medical Council is such an authority for registered medical men, and as the new Dental Council will be for registered dentists. The General Medical Council sits under the authority of the Privy Council, and it was according to precedent that the Midwives Board with analogous functions should do the same. The functions may be epitomised as the elimination of Gamp. No doubt the Privy Council was selected by those who framed the Medical Act of 1858, under which the original General Medical Council came into being, because in this way the Crown members of the Council would be appointed by a permanent body, whose President alone would be subject to party fluctuations.

There has now arrived that central plan which, though overdue, could have had no promise in the past like that which it offers in the light of a real knowledge of the foundations of preventive

medicine. The Ministry of Health has taken over the interests of national health as far as they were represented by the powers and duties of the Privy Council in respect of midwives ; of the Local Government Board in respect of sanitation and preventive medicine ; of the Board of Education in respect of school children, children under school age, and expectant and nursing mothers ; of the Insurance Commissioners in respect of panel practice ; of the Home Office, Colonial Office, and Foreign Office ; and of other authorities dealing with, for example, registration of births, deaths, and marriages, and vaccination. Further duties will be transferred to the Ministry as they appear to be germane to the health of the people, but it will be conceded that the new Minister of Health has got enough to go on with.

What is the outlook for medicine, and what is the outlook for the public under the Ministry of Health, which has been called into existence by the brave aims and high developments of science, and by the deep and deepening sense of the world that the good health of the people is a nation's greatest asset? Surely that outlook is very promising if the happy mean of pace is hit off ; for then we shall stay the course—a splendid course, which as it unrolls itself before us should find us always progressing. But it is particularly necessary that we should not be too precipitate in the adoption of concrete schemes which, while implying the destruction of things hitherto count-

ing for progress, would also commit us in detail to policies or side-shows, later to be found inconvenient and to be abandoned in the ill odour of recrimination. In the more intimate relations between the employing public and the employed doctors which will follow the establishment of the Ministry of Health, the public should understand that the whole of the professional fabric has been gravely affected, so that those who practise the calling of medicine may be forgiven if they do not quite know where they stand.

But the conditions of medical service are not unpromising because they happen to be sharing in an all-pervading social muddle. On the contrary, while much that is dignified and some that is useful may certainly be jostled out of existence in the class and sectional fights ahead, it is certain that medical science will receive new opportunities for expansion. The whole of our civilisation is in flux. In every country leaders of men, made to admit by the revelations of the War the many weak joints in their social armour, have resolved that those joints shall be mended or that armour of a new pattern shall be employed. At the start there is necessarily more confusion than reconstruction and, alas! more words than deeds. This cannot be helped. The necessary qualities in these days of transition are hope and belief—hope that the endurance which has carried us through days of trial will be with us in those of reaction, and belief that knowledge will triumph

over ignorance when inequalities will be righted by a general sense of justice. The medical profession stands to gain enormously when this bright era arrives, but for the present its position is a difficult one, and requires sympathetic attention.

The Ministry of Health, a new Government department, is designed at one and the same time to provide for the people an efficient and orderly medical service, and to secure for the members of that service better means of discharging their important functions. It is impossible that the activities of such a Government department, rendered necessary by the progress of medicine, should fail to operate in the near future to the joint advantage of the community and of medicine, practical and scientific. There is in the country a number of young medical men at a loose end, and, qualified men though they be, they must be nearly as much at a loss to adumbrate their futures as any new student, but with the added perplexity that they may have wives and families to provide for. Many of them are full of new experiences, and they are not finding opportunities for bringing those experiences to market in such a way that they can obtain good terms. The hardship felt by many of the medical men returning from war to practice is undoubted, and the public who are suffering from any backwardness of medicine should be ready to assist an organised forward policy. The Ministry of Health, designed for the public weal, must be administered by

medical practitioners, and if they do it well they are worth their reward.

They should obtain it. Reorganisation of panel practice, which in many directions is imminent, will certainly place at the disposal of young medical men chances of obtaining an assured livelihood and good scope for general or special clinical knowledge. When the panel practice brings with it a part-time appointment at a hospital, and association with professional leaders and specialists, the aggregate emolument will make the young medical man better paid at the opening of his career than his father or his grandfather could ever have expected to be, had he joined the profession, and will also give him greater opportunities. Hitherto one great and condemnatory criticism of the position has been that while the start is so good the future holds no greater promise. In panel practice a man may make almost at the outset what turns out to be his maximum income. It is clear to every one that in the public employment of the future some flexible system of promotion will have to be laid down, so that the inexperienced man does not receive as much money as his senior. The income from panel subscribers can only go up if the practitioner increases the size of his panel, and while for physical reasons this may be an impossibility, for public as well as scientific reasons it is an undesirable form of success. Justifiable comment on the position of panel practice has always been

that the good start does not necessarily ensure the good future, and this is the main direction in which panel practice requires reform, once the question of proper emolument has been settled.

But the meaning of all this is that general practice in Great Britain, as hitherto understood, is largely in the melting-pot. In a few years' time there may no longer be a group of family practitioners having sole charge of the health of certain districts, each of them supposed to represent all the medical and surgical wisdom required in that district, save where the Ministry of Health as medical heir to the Local Government Board, the Board of Education, and the other bureaux, annexes a portion of the burden, and therefore of the remuneration. But the cessation of the old-time methods of general practice will go hand-in-hand with added opportunity, both for specialisation and for the passage from the ranks of general practice to those of hospital surgeon and physician and scientific expert.

A little prophecy may be hazarded, based both on what is happening and what is provided for. Soon there may be no class of general practitioner separated off from hospital surgeons and physicians from specialists, and from officials. The principal hospitals, becoming centres of scientific medicine in their localities, will be officered by men who, by fusion of duty with the general practitioners of the neighbourhood, will make of the whole of the medical energy one general scheme for the good of

the populace. The medical men of the district will have beds in their own hospitals, and will receive for their patients the consultative advice of their fellows and the assistance supplied by a laboratory of clinical research.

And the time approaches when the general practitioner, reinforced in this manner by close communication with all branches of the medical profession, will take his part in the education of the student. Despite all the advances made in medical science during the last half-century, knowledge of disease relates far too much to conditions where the patients are already seriously damaged, and the reason for this is obvious. Such are the patients which reach the hospitals, where they come under the ken of those who have charge of the medical education of the student, and their teaching is accordingly based upon the material under their hands. But that material consists too much of serious emergencies and incurable pathological developments. The present system of medical education is divorced too much from the work of the general practitioner, only out-patient practice being really comparable with general practice. Following this line of argument in his recent book, *The Future of Medicine*, Sir James Mackenzie has suggested that in every school of medicine there should be at least one teacher who has done ten years of general practice. We must not confuse this proposal with a recommendation to return to the old system of appren-

ticeship, under which the medical student before joining a school acted as pupil, pupil-assistant, and (alas, too often !) as obstetric substitute to a general practitioner. That plan had advantages a hundred years ago, and, perhaps, even fifty years ago, it may be admitted, for the medical training of the time was of a much more simple character. To-day any return to such procedures is manifestly absurd ; but that does not mean that there is no real virtue in having part of the student's training in the hands of those with immediate experience of the difficulties with which the general practitioner will meet in his life's work. A part of the medical education of the apprentice, a student, might well come from selected general practitioners. In olden times the value of the education which the medical apprentice received depended entirely upon the unstandardised ability of a master—any qualified medical man—to impart knowledge to the apprentice—any young man who thought he had, or whose parents thought he had, a bias towards medicine. Under the old apprentice system some students obtained extraordinarily valuable training. It is equally obvious that some had no such good fortune. No practitioner would to-day take part in the conduct of an educational curriculum without close scrutiny of his claims.

If the public takes advantage of the opportunities of the near future to co-operate with medical endeavour ; if medicine speaks frankly

and intelligibly on preventive problems to this public, which both in theory and practice is becoming scientifically instructed ; and if ministers, before taking action, listen to the considered views of both sides—then the new Ministry of Health, which cannot fail to be of benefit, will be transformed into an immediate power for incalculable good. And when some of the changes designed appear sweeping, sedater persons can take comfort from the fact that of these changes many were desired by the leaders of thought in the early Victorian era, whose views on preventive medicine and the relations of medicine to the public must not be judged by the legislation effected without taking into account the ideals aimed at.

CHAPTER VIII

THE PATHOLOGIST IN THE STREET

The Artist, Novelist, and Doctor Abroad—Snapshot Pathology and Pavement Diagnosis—Modern Cosmetic Surgery—Victor Hugo and Sheridan Lefanu.

ALL of us look at the world with a prejudiced eye ; we are ready with our judgments before we take in the view. We see that which we expect upon previous report to see or that which we are equipped by special instruction to see, and we make consequently our visual estimates in a biassed way, and in accordance with personal limitations. Now we persuade ourselves that we have observed what we think we should observe ; now, having been trained to note certain matters, we note them so clearly that the picture as a whole gets out of drawing, unimportant things assuming for themselves a paramount place. Nobody can be without personal limitations, that is to say that nobody is both all-seeing and all-understanding. To look about him with an absolutely unprejudiced eye a man must be a good deal blind or very ignorant, in which cases he will not only see so little, but be content to see so little that there will be little call upon a fallible imagination to fill up the blanks. He will not be aware of any blanks, and while

taking no risks of speculative sort will take no profits in the shape of interesting deductions. The more we do see and the more we do understand, the greater become our opportunities for appreciation and misappreciation. In proportion to the breadth of our sympathies it grows exciting for the imagination to try to fill the blanks which should not be hopelessly large, but rather obvious and stimulating. The jig-saw puzzle grows amusing as the solution begins to develop ; and the more a man knows of his fellow-man the more is he tempted to guess at what is hidden. This is what may make a walk in the street quite an exciting experience for the pathologist.

I can imagine the artist being in a somewhat similar position, with a comparable endowment and also a comparable liability to error through prejudice. And the position of the novelist is that of the artist.

The novelist, the artist, and the pathologist possess special information of a far-reaching sort which leads them to see some things and infer others, while it may betray them into disproportionate estimates of the importance of these things. But they, all three of them, are less liable than the majority to errors arising in this way, because the range of their sympathies is so inclusive. The sky, the air, the outline, the colour, the movement—each and all of these demand attention from the artist always and from the novelist sometimes : the pathologist looking at his fellow-

men can find in their frame, gait, deportment, general appearance, and even their clothes, revelations as to their physical condition : and the artist and the novelist see in them models. They, all three, have before them things which, though exposed to the gaze of those who pass, yet go unnoticed because they have to be looked at with special knowledge before they can be truly seen. The special knowledge is essential, and there should be no suggestion that the artist, the novelist, or the pathologist is in any way cleverer than his fellow-men. This claim is not made for either of them ; their harvest of observation, when walking the pavement, is due to their habits of mooning and gaping, instead of striding sternly to business, looking neither to the right hand nor the left. It is not clever or admirable to moon and gape, and prudent persons avoid such habits ; but these are forced upon the artist, the writer, and the pathologist by the ever-present claims of their particular equipments.

The artist must generally look about him in his professional manner—the artist's manner. He is to be judged by what he records ; he sees what his prejudices make him see, the range and accuracy of his record of course depending upon his sympathies, his knowledge, and his technical equipment. It must be remembered that the artist as a chronicler is a man of deliberate artifice ; the suppression of things unnecessary to a central conception of composition must always be occur-

ring in his work, and for the highest reason, namely, because he is aiming at an effect which can only be obtained by omitting certain things which obscure that effect. Artists aiming at different main effects will, consequently, reproduce the same scene in very different ways ; but in the case of the man who is trying to set down all that he sees, adding nothing and subtracting nothing, we shall find that, however conscientious he is, his personality as well as his deftness will influence his picture. Not only do no two composers desire to see a scene in the same way, but to no two artists does the same scene appear alike, though the conditions under which their experience is obtained may be exactly similar. Two equally honest and capable draughtsmen do not convey in their drawings the same idea of so concrete a thing as a tower—one will show us especially its height, another especially its massiveness, though both are drawing the tower as it strikes them. When we come to colouring we know that equally conscientious painters see things actually of different hues. I do not refer to the moral any more than to the physical defaults of the executants. There are, of course, painters who are purposely perverse, as there are painters who are physically deficient in colour sense—at least it is kind to believe that the colouring of some, who none the less exhibit in quite good company, is their misfortune and not their fault. But let us suppose that two men, alike sane in judgment and alike able to pass

lantern or wool tests, sit down on the same day and at the same hour to paint the same object from the same point of view. Is it not certain that the two paintings would have many points of difference? The painters actually do not see the object alike. The reason for this is usually that, while each paints to some extent what he is compelled to paint by the model, each seizes on the thing in that model which he loves best to express, and elaborates that thing. Sometimes the pride of the workman gets ahead of the sense of artistic truth; sometimes the deftness or ease with which certain things by long practice can be done leads the artist to select them for record to the unconscious subordination of other things. Here, of course, the ordinary dictation of trade may be influential. If the crocket on the spire, or the veins on the marble, or the multi-coloured creeper can stream from a painter's brush at the maximum of speed with the minimum of effort, and if these are the items of his achievement which the public have decided to admire in his pictures, he will be a rarely conscientious person if he does not let them stream. A picture in which these details are conspicuously brought out represents for him the least trouble and the greatest chance of reward. But all the time he may be a perfectly honest painter, unaware wherein his pictures differ from the truth. He believes that he sees things like that.

It would be tedious to use almost the same words

to set out the situation of the novelist. He, too, sees much, selects some, and treats the selection with individuality. The pathologist in the streets is in something the same position. The artist is trained to take in the story of line and colour in detail and in mass, to note where lights and shadows fall and their effect, often their unexpected effect, on line and colour. The novelist notes the episode and the characters in relation to life at large. The rest of the world sees some of this, but is not looking for any of the effects and contrasts, and misses, because of indifference of gaze, a thousand things which are revealed by pen or brush. Neither writer nor artist may keep his eyes open in the colloquial sense ; he may have his pocket picked, he may walk beyond the post-office which he imagines himself to be looking out for, he may be run into on the pavement, or run over in the road ; but all the time he is seeing. But the more observant rest of the world is for the most part not seeing, save within narrow limitations. To the pathologist as he takes his walks abroad there are revealed by countless signs and symptoms details concerning his fellow-men which he cannot fail to observe, and which he will interpret, first, in accordance with his general knowledge, and, secondly, in accordance with his personal prejudices. Many of these things are as visible to the rest of the world as to himself, but, having no significance for the non-medical spectator, call for no attention.

The position, it seems to me, is not quite the same when any other calling is concerned. For though all must notice that in which they are interested by their training, the observations to which expert knowledge in the case of most professions or trades leads are of a much more limited character. They are not provoked by everything; they are not elicited by every conceivable situation. When made they may be very exact as far as they go, but they cannot go far. To the lawyer as he walks the streets many of the circumstances of his professional work may be present mentally, but they cannot be brought to mind often by what he sees. His concern is so invariably with the unrevealed qualities of what lies before him, rather than with what is bare to his inspection, that his legal reflections are not called up by his particular environment. He feels that no concentration of gaze, no accentuation of interest, will enable him to arrive at the unrevealed qualities. A house to a lawyer is good property or bad property, or decently profitable property, but he knows that he cannot tell by the look of it to which category it belongs. Grandeur or dilapidation is no just criterion—nothing that can be seen is any criterion. A lawyer cannot tell by inspection whether a house is leasehold or freehold, mortgaged or not, under-rented or over-rented. The lawyer's mind may be full of general ideas on the creation of urban estates or particular ideas on the rating of a certain area, but the environment in which he finds him-

self, the appearance of the houses or men around him, cannot with any frequency compel him to think professionally. To do so would be waste of time, for what the eye alone can tell is worth nothing to him as a motive for either thought or action. He may feel sure that the streets represent a certain average of acquiescence in the law, and a certain average of revolt against it, and so be led to think generally of the administration of justice. Oppressors and oppressed, also in their certain average, rub elbows with him on the pavement, but he cannot pick out unhesitatingly by inspection one man who has committed an illegal act. He differs absolutely from the artist and from the medical man in that the outside tells him so little, and enables him to guess so little.

The observant clergyman can deduce whether he is in a good neighbourhood or a bad neighbourhood as he passes through it, and if he has a little familiarity with the world he will know that the inhabitants of the neighbourhood and the trafficker in its marts are of a certain level of virtue and therefore of wickedness. But he cannot diagnose individual instances; virtue wears no languid lilies and vice no rapturous roses. He cannot accost the complacent merchant and tell that valuable citizen that he is a callous, selfish fellow. Manners might not prevent him from doing this, if he were in earnest, but the limits of his understanding forbid him. He does not know, and he cannot guess, whether the merchant is an altruist

or a pig, or at what point between these extremes he may be found. Generalities he may assume ; the particular is as beyond him as it is beyond the lawyer.

Whether the medical man likes it or not, he must always be regarding his fellow-man, when he meets him in the street, in the light of a potential patient, as inevitably as the artist must always find in the scene or the episode the motive of a picture or a story. It is a misfortune for the pathologist in some ways, though it is his pleasure in others, that the toils of his profession hold him very tightly. The outsides of men thrust themselves upon the pathologist and demand his attention from every point of view, and from inspection of the outsides he is forced to reflection upon all that he cannot see. He never escapes the penalty of his familiarity with the meaning of symptoms. All who occupy the pavements as he passes will group themselves for him into clinical pictures, and the interesting nature of these pictures will be revealed to him, just as the usual or unusual effect of some light or shade may be revealed to the painter. This position carries privileges as well as penalties, and is by no means so gruesome as many seem to suppose. I do not refer, as among its privileges, to the consciousness of being well informed, to the feeling that what is revealed to the medical eye is another's most cherished secret or a matter which, if he knew it, would alter the whole tenor of his ways : my

own belief is that such feelings are foreign to the medical mind. The great privilege conferred on the pathologist by his equipment is his sure knowledge that the tragedies which unfold themselves are balanced by compensating comedies. The nature of what is made patent to the medical man by his expert knowledge is sometimes grim, for to him superficial appearances are often no disguise at all, and the sinister truth becomes apparent when the evidence is slight.

Who would suspect, not being able to estimate the evidence before him, the sword of Damocles that is hanging over this red-faced, cheerful fellow, or see in his cheeks the signal of a fruit over-ripe? To the lay mind this portly person stands for all that is prosperous and confident, and his appetite is the envy of many of his dyspeptic friends—who will send wreaths to his funeral. See the bluff and kindly manner with which he hands his shilling to a thin-faced woman selling boot-laces in the gutter. It is only the medical man who would dare to prophesy white hairs for her long after her benefactor has been gathered to his fathers. Here is a sunburnt cheek that makes all these other circling faces look pallid and worn by contrast. It is natural for the passer-by to covet this brown-red hue, but the medical man may recognise the imprint of the health-resort, and be confirmed in the idea by other things pointing to an ominous diagnosis.

These are two instances where the medical view

is black. The lightning diagnosis may be wrong in the case of the merchant, and unduly pessimistic concerning the case of tuberculosis, but there are many less ominous cases of hepatic and renal disease (for example) where the medical man can, with considerable likelihood of being right, prophesy, and prophesy in gloomy vein. Many of these persons do not know their own position, which is perhaps a merciful fact ; and some have been told the worst, sometimes to find that an unnecessarily depressing forecast of their chances has been made. Especially may that be the case with certain forms of nervous disease. We have all of us seen a man in the prime of life titupping along the pavement with legs kept close together and with hesitating steps and scarcely lifted toes. As long as his lesion remains in the state which merely affects his legs, life is far more endurable to him than the sympathetic onlookers imagine ; and, while it is more than probable that he has learned that his paralysis may spread, and that with its spread muscular atrophy and a dread train of symptoms may supervene, he knows also that he may remain in his present state for many years. Each day's respite brings him an accession of hope ; and in many cases familiarity with the limitations imposed on him by his disease serves him well by enabling him to contrive for himself many things which make his plight more tolerable. I do not belittle the trials and sufferings of the spastic subject, but his physical circumstances

are very usually much easier than his appearance warrants, and his chance of outliving many of his florid athletic contemporaries is quite a good one. Sympathy he commands, but he is far from ready for the grave which seems to yawn for him, and when he goes there it is quite frequently at the bidding of some intercurrent disease which arrives before his nervous lesion makes any vicious development. In such instances the pathologist has his compensations, for his knowledge, instead of serving to rack him with pity, allows him to judge more fairly the calamity before him.

Not infrequently where the layman sees no particular reason for sympathy the pathologist is aware of the presence of a tragedy ; but, on the other hand, where the uninstructed are readiest to offer consolation the pathologist may see no veritable cause for sympathy. He does not share the pity that runs through the crowd as a chalk-faced man, with his arm in a sling, makes his cautious way along, keeping his damaged side against the wall, and being ready with his sound limb to fend off those who press against him. Clinical experience shows him this same man, two or three months hence, wielding a spade or hunting four days a week, according to his rank in life. In the same way the medical man escapes much harrowing of his feelings by the professional mendicant whose claim upon our purses is founded upon his appalling physical ills. The knotted cripple, as he drags his misshapements before the eyes of a

pitying world, is recognised by the pathologist, despite his countenance full of long-drawn anguish, to be often no great sufferer ; his ankylosed joints are causing him no pain, his tuberculous trouble is arrested, and there is no longer any acute mischief present to warrant the appeal of his features. Sad it is, certainly, to look upon the ruined form, and sad to speculate what a closing up of the channels of usefulness and happiness the deformities must mean ; but it is idle to regard the matter from this point of view only, while it is an unnecessary excitement of gloomy thoughts to imagine these people the perpetual victims of ill-fortune. In most cases of the begging cripple we are dealing with no slave to grinding pain, nor even with one bereft of home affections and denied employment because of his physical and aesthetic defaults. His calling is regularly followed, his contorted body is his well-displayed advertisement, and the comfortable lady in a potato-coloured ulster, who accompanies him, is the wife of his bosom, who has married him despite his scoliosis, and on the strength of his ability as an ‘ asker.’ There are pot-bellied financiers who have been married on similar grounds. To call Dickens ‘ a pathologist in the street ’ is justified by his observation of the physical ability which many of his grotesques, like Quilp, display.

We have now in our streets many whose deformities and deprivations are their glories, and the transmitted glories of us all. For us they have

suffered, and they are of our race. At them none looks, nor doctor nor decent passer-by, feeling that they would not wish from any one either compassion or wondering regard. Medicine may claim here a congratulatory word for itself. There are many who now pass unnoticed whose injuries not so long ago would have drawn inevitable attention to them, or, worse, would have been met with that resolute imitation of blindness which deceives no one less than those for whose sake it is assumed. Modern prosthesis, or artificial limbs, and the latest cosmetic or plastic surgery, which includes the refashioning of features, have worked many marvels, and it is due to the science of to-day to acknowledge this.

There are two particular conditions under which the mutilated man can work among his fellows, discharging his duties of citizenship with more or less measure of disability. To make that measure small has been the painstaking endeavour of medicine. Those who have lost a limb will take their place in proportion to the completeness of surgical assistance which it has been possible to render them. Those who have suffered from wounds of the face are, making allowance for residual pains and minor complications, as fitted as any one to do their full day's task, save where cosmetic reasons may interfere with them. To the education of the blind in manual performances, which once were considered to be impossible save to those with sight, and to the education of the

deaf by the art of lip-reading, which makes many of them largely independent of the sense of hearing, I am making no reference—the circumstances are not quite comparable.

The functions of the lost leg have been replaced by mechanical contrivances from historic times, and we should not expect here any fundamental development of prosthesis. The manufacture of the limbs, however, has improved beyond all description, so that lightness and adaptability of the contrivances are enabling many without a leg not only to enjoy tolerable lives, but to enter upon the ordinary routines of activity, and, to some extent, to approach athleticism. Many who have lost a leg defy detection, when walking in the street, from any but the pathologist, while their appliances enable them to get to such business as they are fitted for—and the range is surprisingly large—there to discharge their duties perfectly. It is different, however, with the man who has lost an upper limb. The man who has a lower limb replaced can get to his work with some disability—to discharge that work perfectly. The man who has lost an upper limb can get to his work with no disability at all, but when he gets there he undergoes a serious handicap. Here it is that modern prosthesis has worked a complete revolution. The latest artificial arm, with its arrangements for attachment and for securing motive power, is a wonderful thing, and, although the complex functions of the normal arm are impossible of

exact reproduction, it has been proved that they can be imitated to a considerable extent. Some movement can be produced at the shoulder-joint and much at the elbow-joint, while springs and locks will give grip, and the limb may terminate with an arrangement for the adjustment of tools, or in a gloved hand. The labours of those in charge of the arm-training centre at Roehampton have had these wonderful results, and many a one-armed man can do a good day's work, and move unnoticed among us.

Coming to what can be done for the mutilated face, the War has afforded tragic opportunities here for the display of surgical skill. The classic labours of Tagliacozzi, already referred to, whose treatise on plastic surgery was published in 1597, were in the main directed to the replacing of noses and lips which had been removed either by injury or by disease, and since his day until our day little improvement was effected in the technique, save in India, where rhinoplasty made some progress under good opportunity. The operations in India were designed to repair the brutalities of husbands, for slicing off the nose has been a time-honoured gesture in some districts of India, signifying disapprobation of a wife's conduct. This form of cruelty or revenge, though rare in modern Europe, is of great antiquity. It may be remembered that when Æneas revisited in the under-world his friends who had been killed at the capture of Troy, he saw Deiphobus—

‘lacerum crudeliter ora,
Ora manusque ambas, populataque tempora raptis
Auribus, et truncas inhonesto volnere nares.’
(Virg., *Æneid*, lib. vi., 495.)

Deiphobus was the paramour of Helen after the death of Paris, and received this treatment at the hands of the aggrieved Menelaus and on betrayal by ‘the Laconian woman.’ The late Colonel D. F. Keegan, I.M.S., had some very satisfactory results in India in dealing with amputated noses, and the treatment of some of our recent military patients has been along the same lines. It is probable that some religious animus against this repair prevented Tagliacozzi’s example being followed at the time, for it is said that his almost contemporary, the great Ambrose Paré, denounced as impious such interference with features which had been fashioned originally in God’s image, to be brutalised by man’s action.

But at best plastic surgery must have remained very rough when the surgeon had the help neither of anaesthetics nor of aseptics. The mediaeval world was not without a certain sinister experience of facial surgery, and knew the possibility of repair that such highly vascularised and mobile tissues as those of the face possess, but their knowledge was displayed in destruction, not in restoration or beautification ; for destruction was a trade of value to the operators. We may recall the hero of *L’Homme qui Rit*, surely the most ridiculous book that ever was written by a supremely great

man of letters. Gwynplaine had a permanent and terrible grin fixed by an operation, and fixed for ever, on his face, and the novel opens with a disquisition on the misdeeds of the 'comprachicos' whose grisly trade of mutilating children in the manufacture of monsters, buffoons and grotesque pets certainly existed three hundred years ago. We are not bound to believe the voluminous and staccato information given by Victor Hugo in a typical mixture of eloquence, erudition, credulity and pomposity, but the evidence, literary and artistic, of the fact that the fabrication of monsters was a recognised business is beyond dispute.

An expert in this revolting traffic was introduced by Sheridan Lefanu into his sensational novel *Checkmate*, and the transfiguration of Lefanu's unspeakable villain is far more convincing than that of Hugo's romantic hero. The passage is worth quoting, so nearly has Lefanu recorded the possible procedure, its risks and its results:—

'Now, look at Herr Yelland Mace,' said the Belgian operator. 'It was a severe operation, but a beautiful one! I opened the skin with a single straight cut from under the lachrymal gland to the nostril, and one underneath meeting it, you see' (he was tracing the line of the scalpel with the stem of his pipe), 'along the base of the nose from the point. Then I drew back the skin over the bridge, and then I operated on the bone and cartilage, cutting them and the muscle at the extremity down to a level with the line of the face, and drew the flap of skin back, cutting it to meet the line of the skin of the cheek;

there, you see, so much for the nose. Now see the curved eyebrow. Instead of that very well-marked arch, I resolved it should slant from the radix of the nose in a straight line obliquely upward; to effect which I removed at the upper edge of each eyebrow, at the corner next the temple, a portion of the skin and muscle, which being reunited and healed, produced the requisite contraction, and thus drew the end of each brow upward. And now, having disposed of the nose and brows, I come to the mouth. Look at the profile of this mask. . . . Now, if you observe, the chin in this face, by reason of the marked prominence of the nose, has the effect of receding, but it does not. If you continue the perpendicular line of ze forehead, ze chin, you see, meets it. The upper lip, though short and well-formed, projects a good deal. Ze under lip rather retires, and this adds to the receding effect of the chin, you see. My *coup d'œil* assured me that it was practicable to give to this feature the character of a projecting under-jaw. The complete depression of the nose more than half accomplished it. The rest is done by cutting away two upper and four under-teeth, and substituting false ones at the desired angle. By that application of dentistry I obtained zis new line.' (He indicated the altered outline of the features, as before, with his pipe.) 'It was a very pretty operation. The effect you could hardly believe. He was two months recovering, confined to his bed, ha! ha! We can't have an immovable mask of living flesh, blood, and bone for nothing. He was threatened with erysipelas, and there was a rather critical inflammation of the left eye. When he could sit up, and bear the light, and looked in the glass, instead of thanking me, he screamed like a girl, and cried and cursed for an hour, ha, ha, ha! He was glad of it afterwards: it was so complete.'

But to return to the sufferers of to-day and the things which have been done for them to render

existence among their fellows not only tolerable but in many instances normal. Where only the soft parts of the face have been injured, the interposition of skin from elsewhere to fill the gaps may be sufficient to remedy disfigurement. The various methods for obtaining skin flaps and for placing them in the proper position to simulate lost surfaces or lost mucous membranes are the results of careful ingenuity ; while every sound surgeon, in using certain flaps of skin to replace lost mucous membrane, will remember that it is not sufficient to have good cosmetic results, but that it is essential to restore function.

As war victims multiplied, it was found by the operators that cosmetic results could be made satisfactory to a point that hitherto would have seemed incredible, but the intimate co-operation of surgical and dental experts was usually required, and sometimes great patience and confidence were asked from the subjects. Where in addition to damage of the soft parts the upper or lower jaw has been injured, in all but the slightest cases the operating surgeon must have recourse to the assistance of the dentist. Mechanical support is required during the treatment which can only be provided by a dental expert, while the repair of the nose and jaws presents more elaborate problems to the surgeon and to the anaesthetist. They have been solved by various operators with remarkable ingenuity, and the results have been wonderful, improvements in appearance going

hand-in-hand with benefit of function. Pieces of bone and cartilage have been implanted as substitutes for missing structures, ribs replacing mandibles, costal cartilages becoming noses, phalanges supporting artificial eyes, and bridge flaps taking the place of missing lips and chin; and the long-suffering patient has found himself able to breathe and eat, as well as able to face the street without shrinking. It must be remembered that the cosmetic work at Queen's Hospital, Sidcup, where these miracles have been performed,¹ had the advantage of the aid of Professor Henry Tonks, himself a surgeon as well as an artist. The consequence was that the team of surgeons, dentists and anaesthetists had before them, at all stages of any procedure, expert help both in the advising of the practice and the visualising of the ideal. This splendid surgical work has enabled a large number of our war victims to take an active position among their fellows without any wounding or even inconvenient notice being aroused by their deprivations. In many cases only the pathologist can guess the debt that they owe to modern medicine, or estimate the fortitude and perseverance which they have displayed on their side, to help towards such good results.

Others besides the artist, the novelist and the

¹ Those interested in the details will find fully illustrated articles in the *Lancet*, vols. i. and ii., 1917, by Mr. H. D. Gillies, Mr. L. A. B. King, Mr. Percy P. Cole, Mr. Kelsey Fry, Mr. J. L. Aymard and Mr. G. Seccombe Hett, who worked together at the Queen's Hospital, Sidcup.

pathologist have their professional ardour aroused now and again when walking the streets. The tailor, no doubt, is a keen critic of the garments which he passes by : he grieves over the sagging shoulders of the badly fitting coat, diagnoses the age of our blue serge suit, and changes his mood from cynicism to gladness when that rare animal the dandy saunters by with his gleaming boots, thoughtful necktie and well-creased trousers. But it does not require a man to be a tailor to see that another man is ill-dressed or well-dressed. In the same way all craftsmen may have their professional instincts stirred by what they see, but it is not often possible for them to look behind or beyond what they see, to read hidden meanings into their observations, or to group and interpret these observations until they amount to revelation. These are the things which the pathologist is regularly invited to do. Dupin, Lecoq, and Holmes, of course, behave like this in real life as well as in novels, but observe that it is their business to do so, which puts the whole matter on a different basis. The pathologist's business is not to pry into the health of strangers, but to heal those who apply to him. His detective work is outside his calling, but is forced on him by that calling in the same way that the artist's instincts are aroused by a cloud effect or a colour scheme. Tinkers or tailors, lawyers or clergymen, soldiers or dog-fanciers, being in the street, may happen to make, or not to make, certain observa-

tions because of something connected with their occupation which attracts their attention; but what they can see, as far as their work is concerned, gives scant play for deduction or analysis, though the range of thought that may be entered upon is unlimited, as Dupin proved.

And the errors of the artist or writer, committed in accordance with various influences which prejudice his judgment, have their counterpart in the errors of the pathologist, whose claim to infallibility is not made by himself. The public, over-generous when not over-depreciating, gives credit to the doctor in the street for accurate surmises as to the health of the passer-by. There is often not much accuracy about the deductions which the medical man draws when guessing at the physical condition of those with whom he finds himself in accidental and brief association; the number of mistakes that he who risks a diagnosis on the pavement is liable to make is well illustrated by the varying aspect given to any definite object by different artists. It is unlikely that many medical men would agree about a given obscure case, when the information was derived from casual inspection. Upon certain points there could be no difference of opinion, upon others there could be wide difference; while equally good pathologists, yielding to the bias acquired by the particular direction of their studies, would see things in different lights, or would receive varying impressions from the same objects. It is this which,

while it keeps the attention of the medical man on the stretch, prevents any too great feeling of depression at what he sees. There is so generally a brighter side.

Diagnoses at sight can often be made, but the wider the medical range of the observer the more surely he feels that such diagnoses are not always right, and the more ready he will be to confess that in his surmises he may be swayed by personal feelings. That this should be so is contrary to the general opinion, which holds the pathologist's estimate of the health of those whom he passes in the street to be nearly infallible and usually gloomy.

CHAPTER IX

MEDICINE IN ART

L'Art et la Médecine—Plague as a Favourite Subject—Emerods and Mice—The Value of Pictures to Pathology—‘Bernini’s Enigma’—Jane, John, and the Fanciulla d’Anzio—Incredible Pictures and Credible Stories.

IN speaking of the way in which the street scene appeals to the pathologist and the artist, no allusion was made to the possible concentration of the artist upon medical events, appearances or stories. This is another, and an interesting subject.

The artist of all sorts—painter, sculptor, engraver, and jeweller—has portrayed medical events in the manner dictated by his respective branch of art, and has done so from very early times, for some of our most ancient discoveries in sculpture and pottery bear representations of disease and deformity. Several observers, as Mr. Hastings Gilford did in a Hunterian lecture delivered before the Royal College of Surgeons of England, have called attention to prehistoric drawings of the human figure displaying various physiological and pathological conditions; one of these, an outline sketch from the rock sculptures in the Dordogne, is at least 15,000 to 20,000 years old in the opinion of experts.

Many readers, I have no doubt, are familiar

with *L'Art et la Médecine*, by Dr. Paul Richer ; this book is a storehouse of information on the relation of art to medicine, and beautifully illustrated, as well as admirably written. The work had its origin in the impression made upon Professor Charcot, the great neurologist, by seeing in the church of St. Ambrose, in Genoa, the famous picture by Rubens, representing St. Ignatius casting a devil out of a young girl, and simultaneously bringing a child to life. Charcot recognised the acute observation that had enabled the artist, working from memory, to reproduce accurately the correct features of acute hysteria ; the very symptoms which presented themselves daily at the Salpêtrière were set down, he perceived, on Rubens's canvas. The famous professor and his assistant, for at that time Dr. Richer was an interne at the Salpêtrière, were accordingly moved to study *la grande nevrose* from the medico-artistic standpoint, and the result was a brochure entitled *The Demoniac in Art*. Later their studies in this direction took them into other pathological fields, while at the same time a record of conspicuous cases at the Salpêtrière began to appear, illustrated by photographs and drawings contributed by the staff of the hospital and their pupils. All this work has been largely drawn upon by Richer, with the result that on the neurological side very little is left to be said in a fascinating volume which is easy of access. In other fields of medicine the work is far less complete, though there is a general

indication, through the pictures, how universal since the dawn of our existing civilisation the practice among artists has been to depict the results of disease or deformity.

From the vast selection of illustrated disease which any of the great picture galleries of the world will be found to possess, one thing will be learned immediately : the result for us in this age from the labours of the artist in the past contrasts remarkably with the result derived from the writings of numerous authors who have described medical events in general literature. The difference is this. The artists have very usually shed definite light on medicine, while the chroniclers, poets, and dramatists, though dealing freely with medical topics, have not been as distinctly informatory. Written descriptions of diseases occurring in early literature leave largely doubtful diagnoses for the reader to choose between ; pictorial representations have often been equivalent to accurate naming of the conditions. Historians certainly have touched upon epidemics in accounting for the social and political conditions of the nations of which they are writing, but as often as not it remains a matter of doubtful inference from their words under what particular pest the people were abiding. Malaria appears to have been described in classic Greek literature, and in the Bible there are accounts of some epidemics the nature of which we can identify. But there are other pestilences which conform equally

to any of two or three diseases, and leave the searcher for the truth considerably puzzled. The epidemic to appear in most obvious guise upon the stage of history is plague, but it is quite likely that many chroniclers have here confused leprosy with it and with syphilis, and perhaps with typhus fever.

The artist in his reproductions is limited by what he can see, so that we cannot expect from him pictures which will enable us in many instances to decide which particular internal or general disease his subjects may be suffering from. The face of pain is the face of pain, whether the symptom be produced by one poison or another. The outward signs of disease and the visible results of disease must be the artist's field ; he can depict signs but can only suggest symptoms. We do not look to find in general art anything like a general representation of disease ; and even to-day, with all our easy and cheap aids to illustration, the medical treatise is never fully illustrated. The illustrations in the case of most of the great infections must be of pathological details and not of the patients themselves. But of five diseases which are to-day, as they may have been for many centuries, special scourges of man, namely, cholera, typhus fever, plague, syphilis and leprosy, three at any rate require illustration to explain them clearly, and the older writers of medicine lost by not calling to the aid of their vivid pens the pencil or brush of the artist. It is quite likely that if

such collaboration had been thought of much haziness in diagnosis would have disappeared.

Plague has been the subject of earnest attention among artists, as well as writers, and it would have been surprising had it been otherwise, for pictorial and plastic art in all its forms had its principal origins in districts where, or near to where, plague has had an age-long home. But it is chiefly the great panorama of a plague-stricken community that has been painted for us, and generally the pictures have been made from written descriptions far anterior to the drawings or paintings. The word-pictures of plague are quite numerous, and yet in several instances if the accounts had been accompanied by illustrations our knowledge would have been more precise. There is much in the written history of plague that resembles typhus fever, and it is quite likely that an eloquent writer, having no special knowledge, in describing the plight of Serbia in the spring of 1915, would have conveyed a strong impression that a form of plague had arrived there. Such an event, it may be added, would not have been impossible. There are, again, manifestations of syphilis, of leprosy, or of tuberculosis that would be designated in identical terms by the pen of a lay writer. A series of pictures would have enabled us to make far surer than we now are under exactly what scourge the various nations fell in times of notorious pestilence. The plague of Athens has been described by one of the most famous writers in the world, but what

exactly that plague was remains in doubt, perhaps because no contemporary drawing of the victims exists.

Pictures of the effect of epidemics upon a population do not, however, necessarily give assistance from the point of view of diagnosis. The artist in these pictures is as a rule concerned in recording a tremendous historic event : he is almost never showing us anything he has seen, and it is the great tableau, not the appearance of one sufferer, that he is interested in handing down. The famous picture by Nicolas Poussin, recording the plague of the Philistines ensuing upon the capture of the ark, follows very closely the biblical narrative. The ark has been brought from Ebenezer to Ashdod, and placed in the house of Dagon. We see the stump of Dagon prostrate on the base of his altar, the head and hands are scattered beneath, while the people of Ashdod, smitten with 'emerods,' are lying in numbers on the ground. All sexes and ages have been attacked, the noisome nature of the infliction as well as its suddenness and devastation are indicated, and the appearance in the picture of numerous rats has for us of to-day a significance that it certainly had not for Poussin, though the biblical chronicler may have been better informed than the seventeenth-century painter. It will be remembered that the ark of the Lord, whose possession by the Philistines was considered by them to be the cause of the pestilence among them, having been carried on a devastating career

through Gath and Ekron, was at last, after remaining seven months in Philistia, returned to Israel at Bethshemesh, where at once a sharp outbreak of plague occurred. The surrender of the ark to its owners was accompanied by placating gifts consisting of 'five golden emerods and five golden mice.' The story as handed down gives no further explanation of these gifts, but now that we know the spread of plague to be largely effected through the medium of rodents, it is reasonable to suppose that the golden mice were typical of the disease that had smitten the donors. The golden 'emerods' were presumably metal facsimiles of the actual parts whereon the buboes of plague usually appear. In this way the 'jewels of gold' presented to the Israelites would form a picturesque invoice accompanying the despatch of the ark, designed to explain that the shrine was being restored to the real owners because its retention had produced among the captors a disease well known to be disseminated by rats or mice, and to produce pathological lesions which assumed a certain shape. It is, by the way, exactly significant of the uncertainty to which we are reduced by verbal descriptions of epidemics, that the 'emerods' have been identified by some writers as typical of venereal disease, although in this case their association with the golden mice loses its meaning. Commentators have had much to say, from the days of good Bishop Simon Patrick onwards, as to the palliating presents of the Philistines, but in many

primitive civilisations representations of disease and deformities were brought to the temples to be left behind as clinical memoranda or votive offerings. A varied collection of these pathological simulacra is exhibited at the Museo delle Terme in Rome. Unluckily no such tangible records of the plague in Philistia were preserved. The verbal description of rude tribesmen became the written word of unsophisticated chroniclers, and the story, reaching us without illustration, remains vague, as so many stories of disease have always done.

Nor is this difficult to understand when we see how many adjectives must be common property in descriptions of the four great ills of human flesh. It is almost impossible for a layman to derive a clear mental picture of the manifestations of plague, leprosy, tuberculosis and syphilis from the words of even the most carefully written medical text-book ; by the accounts of a layman he would certainly be misled. The prominence of a bulla and the swelling of a bubo would receive the same epithets, the identical disagreeable terms would be used in describing the various forms of sore or ulceration that present themselves in each malady ; even the stories of the diseases, though in their present form at any rate so different, have features of resemblance. The artist could often have solved these problems for us, as is well seen by such pictures as do exist in illustration of disease.

There is, for example, in the cloisters of San

Marco in Florence a picture of St. Anthony extending the consolation of religion to a plague-stricken youth, in whom the typical bubo in the armpit is so defined as to leave no doubt as to the diagnosis, or as to the artist having seen a case of the disease ; while many of the frequent representations of St. Roch baring his thigh might serve to illustrate a manual on epidemic afflictions. The destructions of leprosy have been depicted by Italian and German painters in such a way that no mistake can arise as to what it was intended to show. A certain number of representations of skin disease suggest that artists had observed the nature of the typical lesions of tuberculosis and syphilis, though without having any knowledge of the pathology of what they were putting on the canvas, while the results of the last disease in its congenital form are the distinguishing features in some paintings of dwarfs and grotesques.

What was the 'English Sweat'? Although the great Caius wrote a *'Boke or Conserill against the Disease commonly called the Sweate or Sweatyng Sicknesse,'* we do not obtain a description from which a diagnosis can be made for certain, and with some doubt we decide to think that this mysterious illness was influenza. No one could possibly illustrate a case of influenza so that the disease could be identified from the drawing or painting, but much might have been learned if any pictures of the 'English Sweat' existed, for lesions might have been depicted, either definitely

proving that influenza was not in question, or suggesting that there was more than one disease concerned in the epidemic visitation.

Of course, medicine has a very definite literature of its own, in which it has been for many generations the mission and pleasure of learned men to describe the origin, course and therapeutics of disease. Of this learning enshrined for the information of scientific men generally, or of practitioners of medicine in particular, much is splendidly written, nor do such books lack what for purpose of definition has been described as the essential principle of literature—namely, universal appeal. For all are interested in their teachings, though expert intervention is required to transmute the theories into practice. The most authoritative of these books belong to the class which De Quincey called ‘the literature of knowledge,’ as distinguished from ‘the literature of power,’ for each of them must remain upon trial for ever: ‘let its teaching be even partially refuted,’ said De Quincey, ‘let it be expanded, nay, even let the teaching be placed in a better order, and instantly it is superseded.’ This is a particularly just observation with regard to the literature of medicine; and in many of these superseded books there are word-pictures of disease every whit as informing as it is possible to make them without the aid of brush, pencil, or chisel. It is most unfortunate that the artist was never called in to illuminate the text. For in the dis-

eases and deformities which he is able to represent he must give the salient features in such a way that no one can fail to diagnose the condition intended. Nothing that ever can happen in the development of medicine will alter the truth told in the picture of St. Ignatius's miracle, while we know from the portraits of dwarfs, in which Velazquez revelled, the types of infantilism which were prevalent in the seventeenth century, and can guess at the probability of their artificial manufacture.

Pictures show how faithful artists have been in their delineation of such diseases as leprosy, syphilis, plague, and rickets. Historians have described these conditions with pains, and medical literature has referred to them with particularity, but in the written accounts stress is so easily laid upon other than essential things, that for the purposes of diagnosis the artist often gives the larger help.

There is a pictorial art associated with medicine, but it came into existence too late to be of much use for purposes of diagnosis of the history of disease. I allude to the illustrations, often beautiful as well as truthful, which accompany treatises on anatomy, physiology, and medicine, and to the charts, maps, and pictorial diagrams intended to be hung in lecture halls for the instruction of students and the assistance of teachers. To this category of artistic productions belong many admirable albums illustrating surface lesions, many adroit wax models, and some large oil paintings of strictly

pathological conditions. There were reproduced recently in the columns of the *Lancet* some famous panels of this sort by Jacques Gautier D'Agoty. The anatomical exactness was here accompanied with beautiful drawing and painting, and all interested can now see the original paintings in the Wellcome Historical Medical Museum. But photography and mechanical reproductions, colour printing and the cinematograph have entirely removed such paintings as those of D'Agoty from the sphere of practical utility ; while this art, which came into being too late to have any historic importance, was usually employed in depicting what could have been learned without it.

The pathological subject is not likely to be the pre-eminent favourite with great artists that it was in the Middle Ages. To the old masters the Bible and the lives of the saints were the source of inspiration, and representations of pestilences, martyrdoms and miraculous healings were the ever-recurring themes of their canvases. To-day the pathological subject is left severely alone by artists whose ambitions lead them to make any appeal to the world at large. Great pathological pictures are not painted and diseased subjects are seldom present now in even crowded canvases, proving that the numbers of crippled and scarred among the ordinary population have much diminished since the reign of scientific medicine began. We have just seen that the developments of medicine are enabling to-day men to mix with us

unnoticed who, a hundred years ago, when ruthless caricature was in vogue, would have been seized upon by the artist as typical points in a street picture.

The illustrations of strictly medical treatises, however good, do not belong to the general province of art, even though they may be very beautiful in themselves, and remarkably executed, and I propose to make no further reference to them. But we find that many surgical and medical conditions have been wonderfully well represented by painters in all ages, where the pathological subjects are but episodes in the pictures, and where the pictures have been masterpieces of art. These more or less accidental representations of disease are executed by artists who do not know what they are depicting. There are a great number of famous works in which such conditions as the deformities of rickets and the results of amputations occur, while grotesques, either in pictures or sculpture, in ornamental detail within buildings, or as gargoyles, are as often as not exaggerated examples of well-known pathological conditions. The pigeon-breast, the curved spine and the club-foot have been in particular seized upon in this manner as models, the familiar figure of Mr. Punch being a kindly example of such artistic fancy. Rowlandson's regular delineation of a man whom he desired to humiliate with his pencil is a carefully drawn picture of an acromegalic subject, and the Italian master Piero di Cosimo had a similar idea

three hundred years before, as he showed in a splendid panel of Centaurs and Lapithae. Piero di Cosimo's cave man was an acromegalic.

The horror of some of the more hideous masks, which have been from very early days a feature of sculptural decoration, has been obtained by accentuating the lesions of Bell's paralysis, or the deformities produced by facial tumours and goitre. It is often quite easy to see in an apparently inhuman congeries of features the normal ground plan and the influence upon that plan of one of these common disfigurements, but a singular omission may be noted, though, perhaps, only to be corrected. As far as I can remember, the disfiguration produced by hare-lip and cleft-palate seems to have been ignored by the manufacturers of grotesques, and yet in the days when the condition went untreated many countenances, made particularly unpleasing from this cause, must have impressed themselves upon the attention. I shall not be surprised to learn that the condition has been portrayed by some well-known artist, but I cannot recall having seen any such picture.

Augustus Hare has drawn attention to a remarkable example of the employment of medical knowledge in art, displayed by Bernini in the famous Barberini baldacchino in St. Peter's. The structure, which was erected by the order of Pope Urban VIII., is so splendid and immense that all who have been in the church must have seen it, though few have perceived its interesting medical

features. The pedestal of each huge spiral column bears on the outside surfaces fantastic representations of the Barberini arms, surmounted by a woman's head, whose features express the various stages of labour pangs in a series of eight representations. The first face is quiet, the next two show pain, the fourth face is serene again ; in the next masks the pains have returned, while in the last of the series the face has become peaceful. Hare records that during the construction of the baldacchino, a Barberini princess, a niece of Pope Urban, was enceinte, and presented the pedestals upon her safe delivery. A more cynical version of the story is that Bernini was revenging a slight put upon himself by the Barberinis, who had opposed his marriage to a daughter of their patrician house. Professor Curàtulo, in an interesting note upon what he terms 'Bernini's Enigma,' has pointed out that while the expression on the masks varies, the shields below, representing the abdomen, change in form and line at the different stages, and that the papal mitre above one of the masks bears a tiny baby's head.

Representations of diseased subjects, which were so frequently and gaily introduced in mediaeval pictures and in the illustrations to the comic literature of the beginning of the last century, will never, I think, become popular again ; but it is inevitable that caricatures of the face should be modelled on the lines of so-called normal faces, because most faces carry in them indications where,

by a vigorous insistence on a few lines, reasonable comeliness may be transformed into something approaching monstrosity. It was along these lines, or against them, that the professional mutilators used to work.

One of the most remarkable things about the human face is the small amount of variant from the normal which produces the most extreme and even ridiculous difference in looks. The features of the beauty are often little better shaped than those of the beast, and a slight puffiness of a cheek or eyelid, a small contraction or cicatrix will produce a radical general difference in appearance. Observation sufficient to stimulate the possessor to draw or paint or model would note this fact at once, and hence it is that sinister grotesques are for the most part only exaggerated pathological drawings. And I think perhaps the reason why the comic or satirical artist so often gets his representation of the pathological departure in the features correct is that the outward mark which is made by the internal skeleton is strong in the face, where we usually assume that all the distinctive qualities reside in the soft parts and the colouring. This is not so ; in the face it is the little bony ridges which determine the curves and planes of the soft parts, and their *résumé* is the beauty of the subject. (This is the point made by Sheridan Lefanu in a passage quoted in a previous chapter.) We are ready to think that the skeletal framework in man matters, as far as appearances go, only to a secondary degree,

of however paramount importance it may be in the lobster. We can see that the skeleton of the hippopotamus suggests its squat, rude power, and that the skeleton of the gazelle indicates mobility and nimbleness. In both cases the character of the skeleton is very marked, so that it is not so much by the colour or the integument that we visualise these animals, as by their framework influencing their contours. But the influence of the internal skeleton over the external view, which is so violently obvious when species wholly divergent in type are in question, is lost sight of when small divagations in specimens of the same animal from some type that is held to be normal are under consideration; the trained eye, whether assisted or no by anatomical knowledge, does not appreciate in a correct manner the fact that any variation in bony surfaces and the smallest exaggeration or suppression in bony ridges produces a faintly different development in the plan of action of all the muscles attached, giving a fundamentally different appearance. And the two great proofs of this are the individuality of faces and the difference between the male and female figure.

Women who masquerade in men's clothes and men who masquerade in women's clothes are quite usually detected by the crowd even though the woman may shear off her tresses and the man may hide his hirsute face under a veil. Swaddled in cloaks and overcoats, either may defy inquiry, but short of such complete concealment,

or very carefully devised disguise, the secret is not often kept for long. It is not the shape of the bust that betrays the imposture, for, in England at any rate, many of the men are nearly as prominent in the nipple line as the women ; it is the general look of the figure following on the slight differences of the skeleton—the essential alterations in external appearance following on small differences of internal structure. But where these differences are vague, as in the lad of the effeminate type and the well-grown slim young woman, the diagnosis of sex is not easy.

This has been shown by a dispute which arose recently over a very famous statue, the Fanciulla d'Anzio. The statue is in the Museo delle Terme, and on recovery from the sea was purchased by the Italian Government, when the world was invited to admire it as a particularly lovely female figure. At the first glance it certainly presents the appearance of an exceedingly beautiful girl, but soon after its exhibition, Mrs. Strong, Signor A. Simonetti and Dr. P. Hartwig came to the conclusion that the statue was male, and in the *Burlington Magazine* Mrs. Strong summarised the evidence for what certainly appeared at first sight a curious view. She made out such an extremely good case for the male sex, that unless some actual identification should turn up—some recognition of the statue through contemporary records—the gender of the Fanciulla d'Anzio will always remain undecided. No casual observer would doubt that

the figure is that of a girl—I saw it before I had heard that the sex was in question—for it is hard for any one not an experienced archaeologist to dissociate the drapery, gathered in below the breasts and again at the waist, hanging low on the neck and flowing over pronounced hips, from the idea of a female figure. To the eye familiar with Greek sculpture, however, such drapery appears to suggest the robed Apollos of the third and fourth century, and the feminine beauty of the faces of these statues is notorious.

Here is a case, it may be said, where the message of the written word must be more vivid than that of the work of art. A novelist calls a character Jane and another character John, and no doubt can arise as to their sex, though for the purposes of the plot Jane may have a moustache and John wear a petticoat. That does not seem to me to be a correct comparison of the results of the two arts, for many a novelist labels as John an unmistakable Jane and as Jane a typical John. The label does not matter ; the thing produced has to be judged. Many authors have tried to describe the feminine man and the manly woman without producing the desired effect ; the old Greek sculptor, deliberately or no, made a statue which is either that of a girl or that of a boy, with the girlish attributes frequently found in the representations of Apollo, and such has been his success that no one knows the sex of his work. In medicine the question of sex is not often open, but when sex cannot be stated the

underlying framework of the body is usually indeterminate.

The foundation of medicine is anatomy ; without a knowledge of structure the phenomena of normal life cannot be appreciated, and without a familiarity with physiological processes the significance of pathological departures will be missed. But because anatomy is necessary to medicine, it does not follow that the artist, either when he is depicting the normal human subject or when he is dealing with the victim of disease, ought to have any profound anatomical knowledge. There can be no doubt that a general acquaintance with main anatomical facts will be a great gain to the draughtsman, but there can be no general rule. The comic artist, engaged upon the business of humorous exaggeration, generally gets his drawing right, and the grotesque sculptor his modelling correct, because the character laid down by the pathological condition is so definite. This character is modified by the quality of the external coverings, which may be general in contour for many species, while varying in thickness for any individual ; but when the artist concentrates his attention upon his object unconsciously, or in the anatomical student consciously, he sees to some extent beneath the surface, so that the bony framework of the creature gives on the one hand a pledge of coarse strength, or on the other a promise of grace and alertness. It would be a triumph of witty perversity to draw a hippopotamus so that it should look buoyant ;

and a gazelle, though its figure had run to seed hopelessly, could never be made to suggest static force. But detailed anatomical knowledge does little for the artist. Where the skeleton is coarsely of a certain type, its coverings, as seen by the artist, will have such definite shapes that it is needless that he should know what is beneath them with any great exactitude before he reproduces what he sees. The masses of muscle and the salients of bone present him with unmistakable objects. Where it is a question of minute modifications of bone producing alterations of surface, which, though not especially large, are exceedingly significant, the close familiarity with anatomy required to appreciate the modifications would not help the artist to any unusual fidelity. The differences in contour and surface markings are often great, but the differences in the underlying skeletons are little, so little that no one would suggest that the artist ought to be able to say of a certain bone, not markedly large or slight, whether it has belonged to a male or a female subject, though he might be expected to give the sex to a properly articulated skeleton. I doubt if the comprehension of the mechanism of the joints protects a weak artist from getting his figures out of drawing, and the great draughtsman does not want to know in any meticulous fashion the underlying reasons for what he sees, before he can communicate his reflections to us on the canvas.

The assistance given by art to medical research

is certainly real but limited, and there is a point here which has significance. Art has sometimes been as valuable in contradicting a medical myth as in confirming an historical episode ; the fact that certain medical events, though vouched for by writers, have gone unnoticed by artists, may imply not want of resource on the part of the artist but too lively an imagination on the part of the author. A lie is told more easily with a pen than with a brush or a chisel. This is shown by the frequency with which illustrators have rejected as subjects medical stories which are obviously incorrect, save where in holy writ or sacred tradition the association with a creed makes all things credible.

And even here a picture, however beautiful and however piously inspired, seems often to reveal the legend as false. When we read of the terrible sufferings of a blessed martyr, of remarkable resistances to torture, of extraordinary combinations of the elements not to destroy the sacred person, and even of restoration to life after executions oft repeated, we do not revolt at the improbability of the details ; we can catch from the written words a contagious faith in the glorious stories. But it is not easy to regard the pictures of these happenings in any spirit but one of scepticism ; and the very things which were painted in the liveliest desire to champion the truth are those which most clearly reveal the impossibilities of the record. As documents to the critic, or as delights to the

eye, these pictures have a high value, but even in the less sophisticated day of their origin they can hardly have increased public confidence in the *gesta sanctorum*. It is doubtful if, for example, the glass in his church in Rouen could have stimulated any close belief in the adventures of St. Vincent.

Our conception of history may have suffered considerably by our ignorance of the diseases to which different races have been subject at certain epochs. For example, the sudden decadence of Greece may have been as much determined by virulent epidemic malaria as by any defects in her political systems, and a few frescoes would have helped to settle the debated point.

CHAPTER X

COMFORTABLE WORDS ABOUT POISONING : OLD CASES

Where Truth beggars Fiction—The Cases of Mary Blandy,
John Donellan, and John Tawell.

AMID the unbroken laudation of the value of scientific discovery there has grown up, and not only among the nervous and ignorant, a suspicion that powers able to go so far in certain directions for human welfare may, under the employ of the unscrupulous, prove themselves to be very formidable assistants in evil designs. The suspicion has some good grounds. The adulterator of food is often an expert chemist, the coiner is nowadays an electrician, the possibilities of the motor-car as an adjunct to burglary have been demonstrated, and those of the aeroplane, which laughs geographical and fiscal boundaries to scorn, can scarcely be imagined. And while there are many sorts of rogues and villains to whom science would prove an excellent handmaid, to no one can she appear more useful at first sight than to the poisoner. But when we come to look a little closely at the directions in which the advancement of scientific knowledge might facilitate the poisoner's plans, we see that the apprehension—which is perhaps more marked

in France than with us—that secret poisoning is on the increase is groundless, while the celebrated cases which are here briefly narrated have all this comfortable feature about them :—the increasing ingenuity of the criminal is met by commensurate skill and knowledge on the side of the law. Which means to say, that scientific development, where criminal poisoning is concerned, makes for security, for the law keeps ahead of the law-breaker. That, at any rate, is the conclusion to which the reader is invited to come.

What is a poison seems an easy enough question to answer. Common intelligence defines as a poison anything that, being absorbed by or received into the subject, results in bodily harm. Such a sweeping definition has much to recommend it, but it is too vague. On the other hand, it is impossible for any one—the lawyer, for example—to be entirely exact, and to codify all substances into poisons and non-poisons. If, for instance, a host seduces a guest into over-indulgence, and there should be a headache on the morrow, this would not be a case of poisoning within the legal meaning of the term, even though the host should know from common experience of wine, or special knowledge of the quality of his own cellar, that his invitation might lead to such a disaster. Yet, in certain circumstances, alcohol is a poison and a very effective one. Or, again, a man might, as Brunel the great engineer did, under a too literal *auri sacra fames*, swallow a sovereign, and it might

stick in his larynx and cause inconvenience ; this occurrence would not erect a certain combination of gold and copper into a poison. These ridiculous illustrations serve to show that, for practical purposes, the definition of common intelligence is too loose, as the poisonous nature of any substance is determined, not by its identity alone, but by other circumstances, notably by its dose, and by its method of administration.

By criminal poisoning we mean here, as is usually meant where no qualification of the phrase is introduced, the administration of a noxious substance with the intent to kill, and not merely with the intent to inconvenience. This, of course, implies that the crime is done in accord with design, and that the substance is selected because of its known lethal qualities. Again, the particular crimes that will be adduced as examples of the methods of poisoning adopted belong in each case to a class of crime that is known as 'secret poisoning,' the qualification implying that the criminal hopes to escape detection either by concealing the fact that poison had been given or by avoiding the discovery of the person who had given it. For it is only in regard to these forms of poisoning that any precautions, legal or scientific, can be taken. Where the poisoner is absolutely reckless of his own safety, and is, in fact, prepared to be hanged, if only his deed can be accomplished, it is evident that no safeguards can be erected. But this form of crime is very rare. 'Secret poisoning,' as

opposed to such a procedure, includes all cases of criminal poisoning whose investigation presents any legal or scientific interest ; but here again there is room for confusion. The phrase ' secret poisoning ' is used sometimes to mean one thing and sometimes another. No poisoners, whether the crime projected be a single-handed one or the work of a confederacy, take the outside world into their confidence, and in that way all criminal poisoning, save the form where detection is not avoided, is ' secret ' ; and the cases may be roughly divided into two classes—a class where the main endeavour of the criminal is directed towards averting suspicion from himself, and a class where the main endeavour is directed towards hiding the fact that the victim has been poisoned. In a thoroughly well-planned crime it is obvious that the criminal would try to maintain both lines of defence. In the first case one may conceive the act of poisoning to be much cruder than it is in the second, and indeed hardly a secret act at all, the question to be met by the criminal being not How was the death caused ? but Who caused the death ? The second form of crime, where it is attempted to conceal that poison has been administered, is the form more strictly called ' secret poisoning ' ; and it is this of which the public is particularly apprehensive, and in the performance of which it is presumed that the developments of science may assist the malefactor. This is the terrific crime which is justly regarded as the worst

offence known to civilisation, for in this category fall those hideous domestic tragedies where the murderer seeks to destroy the near relative to whom he has every facility of access, and on whose deathbed he waits with simulated sympathy. The bloody hypocrisy and bestial callousness that such a criminal displays are made more loathsome by the pertinacity in evil. Other murders, however deliberately planned, are, in the end, sudden ; it may be the essence of the secret poisoner's plot that the victim's agony should be long drawn out, so that the gradual sinking into the grave may most resemble death from an ordinary pathological failure. This is the crime most feared by the public, but good grounds are wanting for believing that recent scientific developments make it easier to accomplish. Novelists here are not good guides, for the secret poisoner is a frequent character in sensational tales. It is natural that this should be so, for in this particular phase of activity life has produced some dramatic models, the truth remaining more wonderful than any imitating fiction. No one has imagined more poignant and inexplicable situations than those furnished by the cases of Mrs. Maybrick or Madeline Smith.

In England arsenic, strychnine, hydrocyanic, carbolic, oxalic, and certain mineral acids have been the more usual agents of poisoning, and in none of the particular cases to which allusion will be made have we to consider for a moment whether the medium employed can fairly be called

a poison. All the cases exemplify the procedure which has been pursued over a long period of years. The quantity administered of these familiar poisons is generally so entirely enormous, so vastly in excess of the necessary fatal dose, that not only has suspicion been aroused by the violence of the symptoms, but plentiful traces of the poison have been found in the victim's body. So that the following is a fair summary of a typical case ending in conviction of the murderer :—

a. The subject of the crime is taken suddenly and extremely ill.

b. He dies with signs and symptoms that accord with those produced by the administration of a well-known drug.

c. This drug is found in his body after death, and

d. Possession of it is traced to the suspected person.

If now the suspected person can be shown to have any reason for desiring the removal of the victim the story is complete. In such a case it will be seen that the one safeguard of the public is the ignorance of the poisoner. It is his ignorance that leads him to employ the usual agents, for he knows of no others ; and it is his ignorance of their physical consequences that leads him to administer them in the grossly unskilful manner that ultimately leads to his detection.

Poisoning conducted on these lines, however secretly the criminal may have intended to carry out his design, resembles the action of the wife-

basher who attacks his victim with a poker ; and it is obliging of such poisoners to employ as a rule a medium which is as obvious as a poker, and with it to inflict mischief which is as patent to inspection as a smashed-in skull. For the injuries which follow poisoning thus performed, are nearly as gross as those accompanying a fractured skull, while it is as easy for those who know to find an overdose of undigested poison in the victim's stomach as it is to pick up a bent and bloodstained poker from the hearth-rug. The wife-basher, however, is aware of the obviousness of his crime, and generally makes no attempt to escape the consequences of his action, beyond pleading that he was drunk or that a nagging woman had tried him too highly—he knows he cannot explain away the poker ; but the poisoner always hopes that the effects of his deed may simulate a natural illness, or that some one else may be suspected.

If we look at a few famous cases of poisoning we shall see how closely the earlier ones fit, in their coarseness of conception and execution, with the summary which has been given of the usual events. I make no attempt to give the full stories of notable poisoning tragedies ; these can be found in the *State Trials* or the *Annual Register*, and in some instances in the *Notable Trials Series*. It is proposed only to mention the salient features of a few cases in support of the proposition that the more elaborate murders by poison, such as scientific developments might prepare us to expect in these days,

carry with them enhanced risks to the criminal. The earlier criminals were hanged because they were ignorant, not because the law was clever ; indeed, so futile were the ancient legal proceedings that it is more than probable that in the seventeenth and eighteenth centuries many able villains escaped punishment for murder by poison. Nowadays, ability does not serve the criminal so well ; the poisoner is more learned, but the safeguards are vastly greater.

The case of Mary Blandy, who was tried at Oxford in 1752, for the murder of her father with arsenic, created enormous excitement, and in some of its features bore a marked resemblance to the famous Maybrick tragedy. A Dr. Addison, the physician who attended the deceased, showed himself to be far in advance of his time, and his mode of procedure might form a useful example to family practitioners at the present day, when they are impelled to the sinister theory that the patient, whom they have been summoned to attend, is the victim of a murderous attempt. He found the patient in bed when he was first called to him, on a Saturday, and was informed by him that, after drinking some gruel on the night of the previous Monday—that is, five or six days before—he perceived an extraordinary grittiness in his mouth. Painful intestinal symptoms developed and were relieved, but returned on the following night, again after drinking some gruel. He compared his pains to an infinite number of needles darting into him all at

once, and stated that they came on almost immediately after taking the gruel. Dr. Addison had been supplied with a story by the patient's daughter, attributing the symptoms to natural colic, with which they fitted in some respects, but in others they were abnormal. He made up his mind that he might be dealing with a case of poisoning, and faced the appalling situation that suspicions could only fall upon the unfortunate man's daughter. He confined the daughter to her room, confiscated certain porringers of gruel and tea which had been prepared by her, discreetly cross-examined the servants and even the dying patient, and supported all his actions by associating another medical man with him in the conduct of the case. Poor Blandy lived three or four days in dreadful agony, but showed in his lucid intervals that he shared the suspicions of his doctor, and the daughter was arrested for murder on his death. Arsenic was found in the deceased man's gruel and tea, arsenic was traced to the girl's possession, and evidence was forthcoming to show that the attempt at poisoning had begun with her engagement to the man who supplied her with the drug. This man was not indicted, presumably because he was believed not to be a willing accomplice ; but Mary Blandy was hanged on circumstantial evidence. She confessed to administering a powder to her father, but declared that the nature of the powder, which had been sent her by her lover ' to clean Scotch pebbles,' was unknown to her, and pro-

tested her innocence to the end. Reading these bald sentences it may be said that no diagnosis but poison was possible, and that particular eulogy of Dr. Addison is unmerited, as he only took an obvious course in the clearest of circumstances. But, as a matter of fact, his action was very commendable, for he adhered to what could only be suspicion after very plausible explanations had been offered of the victim's condition. The rough chemistry of the day gave him no sure assistance, no elaborate text-books described the associated symptoms of arsenical poisoning, and probably he had never seen a case of the kind before. But he acted on his judgment of the probabilities, and at once the mystery began to clear up. His knowledge of medicine would not allow him to accept the story of colic as a satisfactory explanation of the signs and symptoms of the case, while his conscience forbade him to shrink from the alternative. The story fits exactly with the previous outline of a typical case of poisoning by an unintelligent criminal. There was the poison given in such large doses that its effects could be definitely traced to a particular food, and there was the palpable remnant of the poison in that food. The same poison was traced to the criminal, and a motive was forthcoming. But 150 years ago the crime was not as infantile in its simplicity as it now seems to us, and Mary Blandy might easily have escaped punishment—would in fact almost certainly have escaped it—had it not been

for Dr. Addison's instinct and courageous adherence to the view which that instinct prompted. There was no Poison Act in 1752, and no system of death-certification. This means that no record of the obtaining of poison by Mary Blandy or by any accomplice would necessarily have been forthcoming, while, upon Blandy's decease, there would have been no difficulty in accepting his daughter's suggestion that he had died of colic. Severe colic, and even cholera, much resemble arsenic poisoning; indeed, no less a person than Sir Samuel Wilks has said that arsenic poisoning and cholera are often identical in appearance. In the middle of the eighteenth century the crude poisoner had a good chance of security. No one could have been cruder than Mary Blandy, and she was unlucky not to have gone scot-free.

We advance a step when we come to Captain John Donellan, who was indicted about thirty years later—that is, in March 1781—for the murder by poison of his brother-in-law, Sir Theodosius Boughton. Sir Theodosius Boughton, who at the time of his death was within a few weeks of his twenty-first year, resided with his mother, the Dowager Lady Boughton, his sister, Mrs. Donellan, and her husband, Captain John Donellan. On the 30th August 1780, which was a Wednesday, a manservant went into his young master's bedroom at 6 A.M. to get some straps. Sir Theodosius jumped from his bed to fetch them for him out of the next room; he was then in his usual good

health, save for a small local ailment. He got back to bed again, where his mother found him when she went to his room at seven o'clock to give him some medicine. This medicine was a draught made up by the family apothecary containing ostensibly the following:—rhubarb and jalap, 15 grains of each ; spirits of lavender, 20 drops ; nutmeg water, 2 drachms ; syrup, 2 drachms, and an ounce and a half of water. These ingredients had been put by the apothecary into a two-ounce phial, which was given to a man-servant, who gave it in his turn to Sir Theodosius Boughton, who put it on a table in the hall of the house. There would naturally be in this draught a certain amount of sediment and of liquid. Lady Boughton in her evidence at the trial described how she first read the label on the bottle and then administered the draught to her son, noticing that it had a strong smell of bitter almonds. Immediately on swallowing the draught the unfortunate lad complained of sickness and in two minutes he was convulsed, dying in about half an hour without speaking. By his death Mrs. Donellan inherited an income of about £2000 per annum, in which her husband had a life-interest. Donellan drew suspicion upon himself from the first. He went into the boy's bedroom and rinsed out the bottle containing the rest of the draught ; he affected to find evidence that the death was due to cold ; at the same time he confided to a neighbouring magistrate his reasons for thinking that

the death had a totally different cause. If he had not behaved in this way he would probably have been quite safe, for every one in the house believed that Sir Theodosius's death was due to an error in dispensing on the part of the apothecary.

Sir Theodosius, not of age, had a guardian, Sir William Wheeler, and this gentleman now appeared on the scene with a suggestion that the body should be examined by two medical men whom he named. Donellan, as master of the house, acquiesced cheerfully, but was foolish enough both to prevent the post-mortem examination from being made and to pretend to Sir William Wheeler that it had been made with negative results. The body was then buried, but loose surmises had crystallised, owing to Donellan's clumsiness, into a solid suspicion that there had been foul play. An exhumation was ordered by the coroner, and a verdict of wilful murder was returned at the inquest by a jury who were offered no scientific evidence, but who arrived at their opinion as a deduction from Donellan's own behaviour. Donellan was immediately arrested. At the trial some extraordinary circumstantial evidence was forthcoming. It was elicited that Donellan possessed a small still and could have distilled laurel leaves; that he had easy access to the draught before it was administered to his brother-in-law, but after it had left the apothecary's hands; that he washed out the phial containing the draught; and that he had in a sort of way

warned Lady Boughton of an impending tragedy. He knew which morning the draught was to be given, and planned that he and Lady Boughton should be away from an early hour throughout the day ; and, if this arrangement had not been upset by Lady Boughton's personal administration of the poison before starting, the unfortunate lad's death would have probably taken place unseen, and such evidence as there was of poisoning would not necessarily have been connected with the draught. These things, coupled with Donellan's untrue versions of the cause of death, his resolve to get the body buried without inspection, and his large pecuniary interest in his brother-in-law's estate, turned the scale against him. Of scientific evidence there was hardly a trace, and Donellan's resistance to Sir William Wheeler's demand for a post-mortem examination was idiotic, for the chemistry of the day would have discovered nothing, while any abnormality of any organ that might have been present would have furnished some grounds for defence. The four medical witnesses for the Crown laid stress on the absence of all signs and symptoms of disease as a proof that death was due to poisoning, but the post-mortem investigation after the exhumation was a very perfunctory one. The witnesses had made some experiments upon animals, and partly as the result of these, but mainly because of the statement of Lady Boughton that death from convulsions succeeded almost immediately upon the ingestion

of a draught smelling of bitter almonds, they concurred in attributing the death to a poisonous distillate of laurel leaves. Donellan called to his aid the father of modern surgery, John Hunter, whose suggestion that death might have been due to epilepsy or apoplexy was a surprising piece of expert evidence. But it carried no weight, for the great naturalist had to admit that all the symptoms agreed with poisoning. So the witnesses for the Crown prevailed, but Donellan hanged himself every whit as much as Mary Blandy hanged herself. The circumstances ensured that Donellan would be suspected, but he would not have been convicted if he had known the measure of his security, for he would have made no contradictory and foolish suggestions as to Sir Theodosius's state of health, and would have offered no resistance to a post-mortem examination of the body.

Prussic acid was not discovered by Scheele until the year before the murder, and its actual composition was not defined until many years later. But that a strong distillate of chopped laurel leaves was poisonous was common knowledge—indeed, there is a record of a death in 1731 having occurred from the use of too strong an infusion of laurel leaves as a flavouring agent in cookery.

We now skip sixty years and more, and come to the famous Salt Hill murder, which is a good type of that form of poisoning where the poisoner does

not try to conceal the cause of the victim's death, but hopes that he will be in no way connected with the crime, if and when it is discovered. The quantity of prussic acid given here was so large that death occurred with the same terrific violence that might have followed upon a blow with a cudgel or stab with a knife. The prisoner, John Tawell, 'the Quaker,' as he was generally called, was indicted on the 12th March 1845, for the wilful murder of Sarah Hart on the 1st January of that same year, by poisoning her with prussic or hydrocyanic acid. The deceased woman lived at Salt Hill, near Slough, her residence being one of a row of small four-roomed cottages. One evening her next-door neighbour heard some curious noises in the cottage occupied by the deceased, the partition wall being very thin. The noises continued, and took the form of moans or stifled screams. She was much alarmed, and, taking a candle, she left her house and went down the garden into the high road. At this moment, and while the groans were still audible, a man dressed like a Quaker, whom she had seen entering Mrs. Hart's cottage two hours before, came out of the cottage. As he reached the garden gate she inquired what was the matter in Mrs. Hart's house, but the Quaker, who made no answer, hurried off. She entered the cottage and found Mrs. Hart moaning on the floor. She fetched a medical man, but Mrs. Hart died a few moments after his arrival. This medical man, a Mr. Champneys, had, however, the right detective

instinct.¹ He suspected poison, and persuaded the rector of the parish to go to the railway station, and to ask whether a strange man, dressed like a Quaker, had taken a train to London. The clergyman arrived on the platform just in time to see a man in Quaker's garb enter the London train ; it was Tawell who, after hanging about the Eton road for some time in indecision, had decided to return to London. The telegraph communication between Slough and London had just been made. The police at Paddington were put on the track of Tawell, who was arrested on the following day and subsequently convicted of murder on the clearest evidence. He was shown to have purchased prussic acid on the day of the crime, to have entered Mrs. Hart's house two hours before her death, to have left a few minutes before her death, to have lied about all his movements during the day, and to have forcible reasons for desiring to get rid of his victim.

The post-mortem examination, not held as a matter of chance, but a formal procedure provided for by the Death Certification Act of 1836, proved the presence of prussic acid in the stomach, and the terrible story was complete. Here we have a distinct improvement of the criminal's chances more than counterbalanced by the resources of law and order. I reckon as an accident that the victim belonged to the class which enjoys the least security

¹ For the story in detail, and very gruesome detail too, the *Lancet*, vol. i., 1845, may be consulted.

(for the relations between Mrs. Hart and Tawell were of the sort which neither would seek to advertise) ; while it was also an accident, sensational enough it must be granted, which placed in the hands of the law the power of telegraphy almost for the first time on the very day of the crime. The essential differences between the proceedings which convicted Tawell and those which brought home the crime of poisoning to Donellan and Blandy go to prove a solid advance in the machinery for the protection of the public. The post-mortem examination of Mrs. Hart was conducted in accordance with a proper chemical routine, methods for the detection of prussic acid in the body and the estimation of its quantity being now possessed by the medical profession. The medical men no longer, as in the case of Sir Theodosius Boughton, gave an opinion of the cause of death based upon what other persons—and those laymen—had seen of the victim's last moments. They suspected poisoning by prussic acid because of the various symptoms, and then proved its presence in the unfortunate woman's stomach. The railway, on the other hand, offered facilities for crime which had not been taken advantage of before, in that it allowed poison to be purchased at a distance from the seat of operations, and provided a speedy retreat for the murderer, with the possibility of setting up an alibi. The happy activity of the doctor and the clergyman, and the alertness of the police at Paddington, served to arrest Tawell ; the discovery

that he was an ex-convict who had led an evil life prejudiced his defence ; but the scientific evidence hanged him.

Moreover, the General Registration Act (6 and 7 Will. iv., c. 86) had now been ten years in action. It is droll to be praising our system of death certification, which is notoriously inadequate in many respects, but we have to remember that the first Act providing for the certification of births, deaths, and marriages was a real stride forward. Murder, and perhaps especially murder by poisoning, was rendered much easier by the absence of such legislation, and it is impossible not to believe that many tragedies may have escaped notice before the passing of the General Registration Act, because no account had to be given of the cause of death. Death certification, which became the law of the land in 1836, compelled the supplying to a Crown official of information concerning a death before burial could be effected, for which purpose in cases of sudden or mysterious death a medical man had very usually to be called in, or a coroner's aid invoked. Poor young Boughton, for instance, could never have been buried without inquiry had even the rough-and-ready system of certification provided by the first Act been in force. Three causes were alleged by Donellan for his brother-in-law's death, and a medical man must have been asked to decide between them, and must have found that he could not certify the exact cause, or permit burial without adequate inquiry. The coroner's

inquest would have followed as a matter of course. Death certification is a distinctly comfortable thing to remember in connection with murder by poisoning. The present machinery to that end may, and does, require amendment, but such as it is it brings the prisoner into relation, in most cases, with the authorities, when it will be found that the scientific knowledge at the disposal of the law is probably superior to that displayed by the criminal.

CHAPTER XI

COMFORTABLE WORDS ABOUT POISONING : MODERN DEVELOPMENTS

Four Medical Miscreants—Bacteriological Poisoning.

THE cases so far selected for notice, which all occurred between the middle of the eighteenth and the middle of the nineteenth century, show fairly well that the resources of science kept ahead of the resources of crime in those cases. The ingenuity of the criminals increased, but the working of the law was strengthened by the spread of learning. An increased knowledge of social needs had brought about death certification, and an increased knowledge of pathology and toxicology had made the post-mortem examination of those who had died under suspicious circumstances a genuine investigation, in the course of which the true cause of death could be in many cases arrived at and demonstrated upon oath to a jury.

The apprehensions, however, that the poisoner may get ahead of the scientific expert, may, in fact, himself use all the resources of science in a successful manner, become stronger as we approach more modern times, and in particular have been aroused at different dates by the crimes of four notable profound miscreants who belonged to the

medical profession, and who used their knowledge acquired in medicine to perform their terrible deeds.

These four were William Palmer, Edward Pritchard, George Lamson, and Thomas Neill or Cream. Tawell has a connection with this group, for in the character of a ticket-of-leave man he had been a druggist in Australia, and the fact enabled him to order poisons in a manner that attracted no suspicion. For the same reason these four persons had no trouble in obtaining the poisons wherewith to carry out their monstrous designs, though they varied much in the skill of execution which they displayed.

William Palmer was hanged for murder in the summer of 1856. After a short apprenticeship to a firm of druggists, which was terminated in a manner discreditable to himself, he became a student at St. Bartholomew's Hospital, and ultimately house-surgeon at that institution. He then went into practice at Rugeley in Staffordshire, where he had family connections, but soon deserted his profession for horse-breeding and betting on the turf. Thus he became acquainted with John Parsons Cook, a young man who was engaged in getting rid of a small patrimony by gambling, and who died in a suspicious manner at a hotel in Rugeley, after taking medicines and food which had been either prepared for him by Palmer or which had been through Palmer's hands. Palmer was arrested, and the Crown proposed to prove that he had murdered Cook by administer-

ing strychnine, while the defence was that Cook had died of epilepsy or tetanus or angina pectoris, all conditions attended with muscular contractions, but differing widely in history and symptoms from each other, without in any case agreeing at all well with Cook's dying condition. The circumstantial and the scientific evidence, and the skill with which these were marshalled against him by the Attorney-General, Sir Alexander Cockburn, between them hanged Palmer, whose tribute to the share in the result due to counsel—'It was the riding that did it'—is one of the bravest pieces of cynicism on record. Palmer was proved to have purchased strychnine on two occasions just before the death of Cook, whose dying manifestations exactly agreed with strychnine poisoning. Palmer gave no reason why he required the strychnine, nor could he produce any of it. After he purchased the strychnine he gave pills to Cook which appeared to produce the fatal convulsions. Palmer was in dire need of money to avoid prosecution for forgery, and had robbed Cook by methods which Cook must have discovered in a few days, had he been alive. The medical evidence in favour of death being due to strychnine was very strong, while the medical evidence attributing the death to different natural causes was weak and contradictory. But the prosecution had one great difficulty to face. No trace of strychnine was discovered at the post-mortem examination. Antimony, however, was

found, and the theory of the Crown was that the crime had been attempted with both poisons, and that certain careless procedures in the performance of the autopsy had prevented the detection of the strychnine. This probably was the just explanation, and it was fortunate for society that the medical evidence and all the attendant circumstances left no room for doubt of Palmer's guilt, otherwise the failure to detect strychnine in the body at the autopsy might have made a jury reluctant to convict. Palmer himself believed that this fact would lead to a disagreement among the jury, and exactly summed up the situation when he attributed the verdict to the 'riding,' that is to say, to the masterly manner in which the Attorney-General closed the gap in the evidence. On the public the published accounts of the trial produced the impression that Palmer's criminal ingenuity knew no bounds. He was supposed to have discovered some baffling way of administering strychnine so that it should leave no material traces of its presence, and quite sober accounts of the Rugeley crime attribute a mysterious knowledge of poisons to Palmer. But this is mere imagination. In sensational fiction it is enough for the villain to have been a medical student to qualify him for the part of a secret poisoner of transcendent ability, one who will prepare you in a private laboratory, and with a steel mask over his face, things which baffle the analytical powers of the finest chemists ; but in real life the educa-

tion of a medical man does not equip him as a toxicologist. And Palmer was not a scientific medical man. The failure to find strychnine in Cook's remains was an accident due to the faulty technique of the autopsy and not to any subtlety of Palmer.

Some ten years later, that is to say in the summer of 1865, came the Pritchard poisoning cases. Like Palmer, Pritchard was a duly qualified medical man, and like Palmer, also, he at no time enjoyed any large private practice, or showed any aptitude for his profession. The difference between the two men was that Palmer never made any pretence to more than ordinary medical knowledge, abandoned practice almost at the outset of his professional career, and depended upon betting and his small horse-breeding establishment for his support; whereas Pritchard, on resigning a commission in the medical service of the Navy, attempted violently to pose as a man of high biological attainments. His crimes were more elaborately conceived than Palmer's, and he is generally placed above the Rugeley murderer for sheer villainy owing to the fact that he was convicted of the double murder of his wife and mother-in-law; but Palmer, as a matter of fact, had murdered his own brother before he murdered Cook, so that the question of pre-eminence is a little doubtful. Pritchard was in medical practice at the time that he committed his murders, and particularly in the case of his wife he employed a very complicated

method of procedure. For although large quantities of antimony were found in the bodies of both his victims, an uncommon stock of other poisons, uncommon for any practitioner whatever the scale of his legitimate operations, was traced to his possession, and it is probable that aconite, chloroform and atropine were at different times laid under contribution, singly or in combination. Pritchard was, in fact, an ingenious poisoner, and he contrived the dosage so as to give colour to certain theories of death from natural causes. In the case of his first murder, that of his mother-in-law, he had no difficulty with regard to the death certificate ; but in the second case he had to give the certificate himself, and this was the circumstance which brought him within the grasp of the authorities. Palmer was more fortunate, as in both his crimes he found a brother practitioner willing, in the most innocent and ignorant manner, to certify death from natural causes.

Pritchard's crimes caused general public terror, but, so far from there being a reason for increased apprehension as to the possibilities of secret poisoning, there should have been a feeling of relief that the developments of accurate scientific procedure were more than keeping pace with the increased facilities for crime. Pritchard belonged to a profession which gave him easy access to drugs, he poisoned with ingenuity and determination, but the safeguards erected by society proved sufficient. One small point of comparison between the circum-

stances which led to the execution of Mary Blandy and those which led to the execution of Pritchard does not wholly redound to the credit of the medical profession. In 1752 the medical man who first saw Blandy's victim, having in spite of all attempts to draw him off the trail become suspicious that he had to deal with a case of poisoning, took immediate means to verify his suspicions and, if possible, to protect his patient. He gave no thought to the extreme inconvenience that might accrue to himself if he had fallen into error. In the case of Pritchard's crimes the medical man who was called in both to the second poisoning case and to the first poisoning case, had his suspicions aroused with regard to the second case, but took no further step than to refuse to be associated with the treatment. He does not appear to have said a word to Pritchard as to these suspicions, although the possibility is that by doing so he would have saved the life of the second victim, while by putting the police in motion he would have brought the first crime home to its perpetrator. Where the eighteenth-century medical man faced the position bravely, the nineteenth-century medical man shirked his responsibility, and at the same time damaged the prestige of the whole of his profession by alleging, as an excuse for his conduct, the dictates of 'medical etiquette.'

With the next murderer selected for notice we make a distinct move forward towards scientific crime. Dr. George Lamson was tried in 1882 for

the murder of his brother-in-law, Percy Malcolm John, and the methods which he employed were on a higher scientific plane. Lamson's crime did indeed justify the question whether the developments of science might not, by removing the safeguards which protect us, elevate the poisoner into the position of a real enemy to society. He selected a rare alkaloid, aconitine, as his medium, and all the circumstances of the crime were planned to make the death appear a perfectly natural one. He gave the dose enclosed in a capsule with some white sugar. He chose his time wisely, for young John, a boy in delicate health, had just made a plentiful meal of the sort that might well be expected to induce acute indigestion. Some hours after swallowing the capsule the lad died.

Now Lamson was familiar with the ordinary processes of an autopsy, and he thoroughly believed that the fraction of a grain of an alkaloid, for which there was no chemical test, would escape post-mortem detection, especially when mixed with the contents of a full stomach. He believed, in the first place, that the symptoms of poisoning would go unrecognised, and, in the second place, that, should the death certificate be withheld, the agent that he had selected would defy chemical research. But the beliefs were ill-founded, and this fortunate result is so likely to be the usual issue of poisoning with rare alkaloids that, in seeing how it was brought about in this case, we shall be able to appreciate what are our safeguards

against the criminal use of elaborate developments in the art of chemistry. Lamson was a duly qualified physician, by convention an expert in drugs, and by law in a position to obtain possession of deadly poisons with ease—a privilege, by the way, that is known to be largely shared with the medical profession by the public at large. He chose a poison the dose of which was excessively small, the chemical tests for which were unknown, and the symptoms of which were obscure. Indeed, aconitine had only once previously figured in public as a cause of death, so that its effects were necessarily a secret to most men, medical or lay. The ordinary post-mortem examination revealed no cause of death. So far all went well with Lamson, and so far his expert knowledge stood him in good stead as a secret poisoner; but the fact that an autopsy was made shows us that the circumstances of the death, though they might well be natural, were not explicable on the surface. The symptoms were too violent to be attributed to an ordinary gastric disturbance, and an investigation was started with the view of proving that the boy had been murdered by an irritant poison. The clue was obtained by a few words of dying complaint in which the unfortunate sufferer alluded to some peculiar sensations in his mouth.

The awful suspicion thus aroused was confirmed beyond a shadow of doubt by scientific evidence from two sets of experiments, undertaken by expert chemists firstly upon themselves, and secondly

upon living mice, by injecting them with the alkaloidal extract of the victim's stomach. This alkaloidal extract produced manifestations that are always associated with the use of aconite, while the symptoms of aconite poisoning more or less corresponded with those which the moribund lad had described. Again, the alkaloidal extract killed mice in certain times and with certain signs, which were demonstrated to be identical with the times and signs when the same little animals were killed with solutions containing aconitine of known strength. These facts were submitted by the Crown at Lamson's trial as proof that the boy had died of aconitine poisoning. The brilliant Montagu Williams did his best to argue and laugh the methods of proof out of court, but the scientific men, the late Thomas Stevenson and August Dupré, were too strong for him. The theory put forward for the defence was very interesting, in view of its indication of another and terrific form of poisoning. It was suggested that the alkaloidal extracts which proved so fatal to mice might have contained ptomaines, the result of cadaveric change. The view made no impression because, as it happened, the body was not decomposed. It was freely admitted by the Crown that there was no known chemical test for the vegetable extractive aconitine, but it was claimed, and the jury allowed the claim, that the analysts had demonstrated the extreme probability, almost the certainty, of their views. Then it was proved that the prisoner had

bought aconitine in more than one place, had tried to buy it in others, and had in great probability attempted to administer the drug before. Personal advantage was shown also to accrue to him by the death of the lad, for, as in the case of Donellan, a valuable reversion fell to the murderer on the death of his brother-in-law.

Here was a man of scientific attainments and medical knowledge who chose his poison and chose his time, but failed to secure immunity from punishment, and the comfortable lesson from the story is that similar failure would generally follow similar attempts. Lamson was hanged, and the reason was his ignorance. Ignorance still, though only comparative ignorance. He knew more than those around his victim, but not so much as the really learned. That is to say, when once suspicion fell upon him, his science became of no avail, for more scientific people than himself were arraigned against him. What was the measure of chance that suspicion should fall upon him? For this constitutes the measure of danger to the community that such a person is likely to be, since, once suspected, he is almost certain to be detected owing to his comparative ignorance. These are the circumstances which give the public a good chance against the scientific poisoner; they are those which led to Lamson's failure and execution, and which possibly have given pause to some who would emulate his exploits.

(1) The scientific poisoner using a rare drug is

using an agent of which generally he can know little, for the individual experiences of one man concerning a drug amount to nothing. If he employs a drug which is rare enough to have a good chance of baffling detection supposing a post-mortem examination is made, it must be one of which he himself, in common with everybody else, is comparatively ignorant. Hence the chance is great that he will give an overdose, and by producing sudden symptoms arouse suspicion of foul play. Then, scientific man though he be, his proceedings may be as crude as those of the wife-basher. Lamson, taking him as the best example of the scientific poisoner, was clumsy in his dosage, and in consequence drew disastrous attention to the fact that he had administered the fatal capsule.

(2) Lamson might have carried his scientific ingenuity further and perfected himself by experiment before venturing on his crime. Any other scientific poisoner might do so, but, even so, he would find great difficulties in his way. Experiments on animals can only be conducted with certain formalities, in certain places, and under due licence. Assistance is generally needed for carrying them out in such a way that their results shall be trustworthy. These things would dreadfully embarrass a would-be secret poisoner.

(3) There may be difficulty in obtaining the drug, when its purchase will attract pointed attention, even though the purchaser be a medical man. The professional use of rare alkaloids is not common.

(4) The plea of accidental death cannot be set up with any show of plausibility where a rare alkaloid has been used, as it can where the agent has been some common commercial product, used in the household offices for scouring or vermin-killing, or one that is known to be the chief ingredient in popular hair-dyes or complexion-washes or weed-killers. The person who dies of aconitine does not die by any common or easily explicable accident.

It would be a bold generalisation from the consideration of the crimes of Palmer, Pritchard and Lamson, to say that chemical developments in poisoning are not likely to produce an increase in the number of secret poisoners, but the murder of Percy Malcolm John is a very good example of the kind of crime concerning which the public is naturally apprehensive, and the subsequent execution of his vile relative may well be believed to have acted as a deterrent. Lamson chose the best possible agent for his purpose, namely, a little-known vegetable alkaloid. In favour of secret poisoning by vegetable alkaloids we have the smallness of the fatal dose, the obscurity of the symptoms produced, and the impossibility of obtaining chemical proof of the presence of the alkaloid in the body. Against these we have the difficulty of obtaining the drug, the notoriety that will attend the purchase, and the impossibility of any question of accident or suicide being seriously considered by the jury. There is also the difficulty of determin-

ing the dose in the absence of laboratory facilities. All this seems to imply that the successful secret poisoner, the person who might sin and sin again without much risk of detection, would have to be a learned professor with a teaching appointment. There are not many of these valuable citizens in this country where educational endowment is still scanty, and surely no large proportion of them is indulging in homicidal mania. Yet to me it seems likely that their number expresses the public risk of secret poisoning on a scientific plane so lofty as to be above discovery.

A fourth medical man is here introduced merely to complete the category, Palmer, Pritchard, Lamson and Neill (or Cream) being the four last medical men in this country to suffer the extreme penalty of the law for poisoning. If any lesson is to be drawn from a consideration of such murders, it is clear that the lesson will have greater force if no selection be made of the cases.

Cream had some low-grade American medical qualification, and actually poisoned five or six persons before he was hanged, so that the justice which a science superior to his own was able to secure for him may seem tardy. But the circumstances of Cream's crimes were special, and the crimes could have been equally well perpetrated by a layman. The particular act for which he was hanged was one of a series of murders which he committed in a short space of time by methods which did not offer any particular difficulty of

detection, but which showed him to be a wild beast preying on a section of the public whose behaviour makes it almost impossible to protect them by legal measures against any outrages. The character of Cream's victims must be taken into consideration, when we at once see that the public as a whole runs no risks from similar miscreants, while remarkable ease characterised the commission of his crimes. Cream's victims were low-class prostitutes who had no personal acquaintance with him until he accosted them, who lived under furtive conditions in hired rooms, where little was known of them or their acquaintances, and where they received their clients with little desire for publicity on either side. There is practically nothing to stop a murderer from committing his crime in such circumstances, and but little to trace him by when the crime has been committed, as has been shown over and over again when an unfortunate girl of this sort has been done to death. Cream was a wild beast, but he had no intention of laying down his life to satisfy his blood lust. He selected, as did the monstrous Whitechapel murderer, the most defenceless class of all society as his victims, and he might never have been arrested if an impudent belief in his security had not led him to attempt the blackmail of a distinguished physician whom he threatened to accuse of the murders. In his case the essence of the crime hardly resided in the fact that he had employed poison as an instrument, for he might with equal impunity have employed

a knife or a club. A knowledge of drugs served his shocking purpose, but was only incidental to and not essential to his crime, and no scientific subtlety on his part would have made him a more dangerous foe to society.

A terrific suggestion has been made by more than one writer of sensational fiction that the results of bacteriological research might furnish the medical poisoner with the means to afflict his fellow-creatures with mortal illnesses, but the fears expressed have generally carried their own refutation, while they have been inspired, obviously, by a more than usual capacity for swallowing marvellous stories. Still the question has been seriously asked—What is to prevent the scientific poisoner from infecting his victim with ptomaines or with the germs of fatal diseases ?

It is true that in certain infectious diseases of a dangerous, even deadly, character, the existence of minute living organisms which stand in causal relation to the diseases has been demonstrated. More, the discovery of a specific *contagium vivum* in connection with several of the fevers has led to the conclusion that an analogous cause is present in all the other fevers. Here then seems a mighty opportunity for the poisoner ! He has only to infect his victim with the specific germ to inoculate him with a deadly disease. What risk does he run ? At first sight it would seem that this is a method of poisoning made possible by the pro-

cesses of science which should bid defiance to detection. The story of such a case would be in direct opposition to the story of the typical case of poisoning by drugs, such as has been already narrated in several of its commonest forms. The victim would not be taken suddenly extremely ill, unless he chanced to be infected with one of those fevers where invasion is very abrupt. He would die with signs and symptoms according with those produced by a well-known natural disease, from which natural disease, indeed, he would have suffered. The autopsy would either prove negative in result, or reveal the presence of the well-known natural disease. Why should suspicion be aroused? Why should the necessary death certificate be withheld?

The answers to these questions have been given. The safeguards of the public are here really as efficient as in poisoning by rare and elaborate drugs, though they are of a somewhat different character. First, the possible infliction of an epidemic upon a community for the sake of securing the death of an individual is a course of conduct from which the hardiest villain might shrink. This must minimise the attempts at the use of the germs of zymotics. Next, to all but an extremely limited class of persons germ-inoculation must be quite impossible to perform. Much technical knowledge and manual dexterity go to the making of a bacteriologist, and this fact has escaped the notice of those who think that be-

cause specific germs can be isolated they can be readily obtained in an active state by any one with access to a laboratory, and that the process of inoculation can be secretly performed and with no trouble. As a matter of fact, secret poisoning by inoculation of specific germs is well-nigh impossible. I have alluded to it because it is a possibility which has exercised public imagination. Like the highest developments of poisoning by drugs, it could only be attempted by a person with the resources of a laboratory behind him, and an expert pathologist's training ; and I must repeat that such persons are not very numerous, and that the proportion of them who are murderers is presumably small.

Everything goes to show that the poisoner of the future will not be a very dreadful person—at any rate, will not be a more dreadful person than the poisoner of the present, unless we credit in the future all the scientific acumen to the villain, and none to those engaged upon the side of justice. For this one dilemma will always remain to the poisoner. If he is ignorant entirely, sheer ignorance will hang him ; while, by as much as he knows anything, by so much will he be a marked man, upon whom suspicion will fall.

CHAPTER XII

PRIMORDIAL AND OTHER STUFF

The Survival of Personality—Ether as the Primordial Matter
—The Position of Professional Thought—Mysticism and the
Law — *Phenomena of Materialisation* — Thomas Vaughan
—Medicine as Counsellor.

SIR OLIVER LODGE, at the Birmingham meeting of the British Association, held in September 1913, took the opportunity offered by his position as president to make in an inaugural address an appeal upon radical grounds for some conservatism in scientific views, while at the same time indicating that, for this reason or that, all old faiths in things physical required new justification. Continuity must be preserved and adaptation welcomed. His words showed how well he knew that the results of over thirty years of physical and psychical research had brought him to conclusions which would not be palatable to many of his audience, though, none the less, he was resolved to put on record, in justice to himself and to his co-workers in outlying provinces of scientific investigation, a conviction 'that memory and affection are not limited to that association with matter by which alone they can manifest themselves here and now'—that, in other words, what we call death, bodily death, does not abolish personality.

Since those words were spoken much water has flowed under the proverbial bridges to be absorbed in the sea ; and countless lives have disappeared like that water, the identities represented being merged in an uncharted ocean. And the feeling has increased in force that to be merged is not necessarily to be lost—indeed, the rivers are not lost in the scheme of physical geography.

The main proposition in Sir Oliver Lodge's presidential address was that we have in the ether our proof, hard as it may be to realise, of that ultimate continuity which science is ever striving to establish. The ether, as the one common permeating substance that binds all together, requires, as is well known, to have its very existence assumed, for, at any rate as yet, we have no physical standards by which to estimate its qualities. It may be that its omnipresence and uniformity withhold it from observation, but to say so is itself an assumption. Sir Oliver Lodge has recently reaffirmed his view with regard to ether, ' that its ignoration is by no means equivalent to its extinction,' anticipating a not long deferred time when it cannot be ignored. On the possibility, then, that the ether of space exists, while we can expect little material sign of it, a relaxation of the cordon between the living and the dead is postulated. This is continuity indeed—and some might say continuity with a vengeance ; but Sir Oliver Lodge's pronouncement was welcome because he made it in certain terms and on a certain occasion.

He is no smatterer in the mystic, and the sessions of the British Association are the recognised opportunities for recording progress in science. By stating that, as a sequel to the famous advances in physics, made notably by himself and Sir J. J. Thomson, he was able to assure himself that under certain conditions discarnate intelligence may interact with us on the material side of any imaginary barrier, and thus produce manifestations that may come, however indirectly, within scientific ken, he placed the whole subject of psychical research upon a different basis from any which it had previously occupied. This was undoubtedly a source of deep regret and even of some irritation to many scientific men, while to others it came as a hopeful inspiration. Sir Oliver Lodge threw down a challenge to those who utter 'comprehensive negative generalisations from a limited point of view'—his paraphrase of Hamlet's famous admonition to Horatio ; and he conveyed a promise, implied in his words, that the results of investigations already made would be published by pioneers in the latest territory to be subjected to scientific sway.

Already thus, in 1913, in the last complete year of the old order of things, Sir Oliver Lodge had declared the existence of some proof that those who are dead remain *en rapport* with those who are alive ; and his later and pathetic personal testimony must be considered as supplementary to evidence previously acquired. *Raymond* brought no conviction to many of us, and the fact that

it was a development of previous predilections or acquisitions of fact did not advance its argumentative position. But it need not detract from it. Taking it as an example of the evidence on which a great thinker rests his scientific belief that the dead remain in physical communication with the living, it may be asked whether medicine has anything to gain by the systematic investigation of borderland problems. The answer, of course, is yes ; and more, it is the duty of medicine to aid such investigation.

The persons to whom the public look for guidance when a new doctrine is promulgated with authority, and from founts of proven learning, are of various sorts, according as their claim to be guides has some practical substance behind it. In the main the shoutings of ardent disciples will be discounted in the usual ninety days, while the opinions will be valued of the leaders of the learned professions ; these will take precedence even of pure thinkers, whose daily province it is to think, and to stop there. The views of philosophers, logicians and artists in the widest sense will hold good with the public in so far as they receive endorsement in daily work from the typical professional group, namely those who serve the Church, the law, medicine, secondary education and applied science, also in the widest sense. Fortunately this group possesses men who display in varying proportions philosophic spirit, logical equipment and artistic sense. As mediums be-

tween abstract and concrete knowledge they have a position in which they can estimate the evidence for or against immediate acceptance of a new doctrine, being protected by their training from credulity, and, let us hope, from narrowness.

The years which have elapsed since Sir Oliver Lodge's address was delivered have been years of utter change in the standards of thinking, during which the improbable has occurred so much as a matter of course, and the impossible has been achieved so often, that teachings which call for faith are being accepted with readiness. There is thus a risk lest we should exchange scepticism for gullibility.

In this position those who make up the professional group are placed in different attitudes according to their particular vocations ; while all of them should approach the matter with the same intent to let truth prevail, the points at which faith in the unproven may dictate a work-a-day policy cannot be the same. It has been said in previous chapters, when considering the status of the doctor, that divinity, law and medicine are no longer the only callings for which education of a professional standing is required, and that their followers have no claim to represent in themselves a higher culture. The contrasted position of the three professions is pertinent. The limits of faith are undecided in respect of medicine and physics, but they lie between the extreme points which will be adopted by the Church and by the law. The Church can

utter no comprehensive denial of the possibility that an immortal soul should manifest its immortal existence to mortals. Belief in such a possibility does not interfere with religious work, a fact which does not make it other than right for religious workers to probe as deeply as any one else into the narratives of unlikely happenings, and to be as guarded as their fellow-citizens against duplicities or self-deceptions. The law is in the opposite case. In the present state of our knowledge the law cannot allow this possibility to interfere with the administration of justice ; the legally dead must cease to play a part in the affairs of the world which they have left, if only because they cannot be called to account for any default. But there are signs that the practice of law is becoming readier to accept as actualities events that belong to the mystical, inasmuch as they are inexplicable along accepted lines. The signs are slight, and represent an involuntary homage to popular phases of fancy, but anything that seems to bridge the gulf between mysticism and the law must be noted.

Whatever his private beliefs, to the lawyer in the practice of his profession the manifestations of what is known as spiritualism have hitherto been of no account. The revelations of the séance are not laid before judges and juries ; the spirit of the victim is not invoked to mend broken links in the chain of evidence against a murderer ; and, however obscure the intentions of a testator may be, he is not invited to explain them through the agency of

a medium for the enlightenment of a judge of the Chancery Division. The intervention of the dead as witnesses has been ruled out by the famous judge who refused to allow the court to be told what the soldier said. It might be argued that the medium would be in the same position as an interpreter, if the fact that discarnate evidence could be materialised were allowed. But the medium as an interpreter is admitted by his most fervent supporters, as well as proved by his actual performances, to be a very faulty reporter, his lapses into incoherency being attributed to the disabilities of his informants. Moreover, the interpreter can always be checked by others who know the language interpreted, while the medium can never be interfered with. Further, would the disembodied spirit answer through the medium those inconvenient questions which counsel describe as 'cross-examination to credit'? Would the errors of a mundane career weaken post-mundane testimony? These are frivolous questions, and are only asked to show how unthinkable it is that what are called supernatural phenomena should be allowed to carry weight in a court of law, even though leaders of science may say that the boundary between the natural and supernatural has been so set back that there is nothing in physical experience to preclude an event from being in consonance with undiscovered facts.

But are these questions quite frivolous? Recently the newspapers have reported two or three

occurrences unusual in courts of law, where official notice has been taken in directions that seem almost mediaeval, though they represent a modern desire to extend knowledge by faith. At an inquest in Wales upon a case of possible murder a name, said to have been revealed at a séance, was handed in and accepted by the coroner, in the sense that he took physical possession of the paper. Presumably he placed it in his archives without comment, though he may have warned the witness, who said that he was no believer in spirits, of the dangers of libel or slander. The fact remains that the name was offered for the information of the court, and that a certain amount of evidence was given before the coroner as to what took place at the séance. Simultaneously, in another trial for murder, evidence was tendered and accepted by two judges, as to statements made to a doctor by the accused when under hypnotic influence. And in the same week a metropolitan magistrate listened to the complaint of a woman who had been served by her dead landlord with a notice to quit her home. Her complaint to the court was that the deceased had visited her every night since his burial, and told her to leave the house at once. The magistrate furnished her with a practical reply for the wandering ghost and clearly saw no need to consider that any fact was before him. 'Tell the ghost,' he said, 'that he cannot evict you unless he first makes application to the County Court.'

We are here reminded inevitably of the well-

known story of a Lord Chief Justice, who was visited at night by the friend of a prisoner awaiting trial. In the character of an apparition the intruder, standing by the bed-side, proclaimed that he was sent by God to command the judge to enter *nolle prosequi*. The judge, of different metal to Henry of Valois when similarly visited by Chicot, sat up and thundered : ' Lying varlet, God knows as well as I know, that it is not for the Chief Justice to enter *nolle prosequi*, but only for the Attorney-General.'

The position of medicine and of physics is, it will be seen, much more flexible in respect of what is called the supernatural than is the position of the Church, where belief in the supernatural is demanded, and that of the law, where its effective existence is denied. Medicine has always to keep a double object in view : to prevent and alleviate disease, and to promote knowledge whereby such prevention and alleviation may be rendered more perfect. In the first half of its duties it must be governed to a great extent by the dictates of accepted knowledge ; in the second half it must be ready to receive all messages of hope. Thus it has at one and the same time to go fast and to go slow, to be wary and to be rash, to be sceptical and to be imaginative. The critics of modern medicine hardly appreciate the situation, whose complications are well illustrated when the possibility of intercommunication between the living and the dead is being considered.

The great extension of psychological medicine must, for the good of all, be kept along an ordered course, and although the leaders of medical thought may be trusted to define the margins, there are those within the medical profession, urged by an inflamed public, who regard all reservations as due to timidity, ignorance, or fat and flat materialism. This is unfair. There is no doubt that, as medicine stands to gain by the systematic investigation of all problems of a scientific nature, the subject of physical communication with the dead is one that medicine should study. But those who have made up their minds to interpret their experiences, or things which they have been told, in the manner which suits their inclination must not be surprised if medicine preserves a more discriminating manner. I do not refer to matters where no question between people of sense can arise. Spirit photographs are not evidence while they can be faked, and premonitions are not significant of anything at all unless recorded beforehand in an unmistakable way ; the small fraction so recorded can often be explained by no such violent method as postulating the physical interposition of the dead, and the balance is open to explanation by coincidence. So much will be allowed by those who wish to extend the truth, and allowance may also be made, if the position claimed for a medium is to some extent admitted, for errors in the medium's methods or technique. With the honesty and courage of those who believe that they possess

proofs of intercommunication between those who are dead and those who are alive there should be much sympathy ; but there must be similar sympathy with those who do not regard as proven statements supported by evidence concerning whose value there can be no easy agreement. They are not making comprehensive denials but are asking for something which they can comprehend.

Medical men should be, and, as a matter of fact, almost invariably are, willing to hold that science is incompetent to make comprehensive denials. Medicine is constantly working on the border line between the quick and the dead in one direction, and in another between the material and the spiritualistic. The barrier which is drawn for practical purposes somewhere between that which we can show by physical proof or deduce from accepted physical knowledge, and that which we cannot treat in this way, is well recognised by medical men as being a shifting one. Moreover, it is one that is constantly being set back, for example, in neurological developments, and in the use that is being made of the curative powers of radium, the ionisation of drugs, and of hypnotic therapeutics. But because successful incursions are becoming frequent, a promise of the sudden removal of the entire barrier has a particularly disturbing effect. What is to restrain the wild faddist in a profession where the greatest liberality of thought and action must be allowed ? Medicine, as we now under-

stand it, has evolved slowly ; true philosophers have been aided in their work, as well as impeded, by wizards and astrologers ; the lore of mysticism and the researches of herbalists have alike been drawn upon. Fundamental scientific discoveries have enabled us to sift the materials, whatever their sources, from time to time, fitting into a homogeneous scheme what duly belongs there, and rejecting what is seen to be absurd. But followers of the discarded doctrines are not always satisfied by this process ; they register their protests, and disciples spring up who cling to the whole of the ancient creed because parts of it have been substantiated by later work, and thus elevated from intuition to deduction. The fact that once certain doctrines stood for scientific medicine is remembered, and permanent faith in them, as an entity, is claimed to have a sound basis. In this situation comprehensive negatives may be from one time to another time necessary, for at the selected time they prevent our knowledge from being choked by its own undergrowth.

Recently the world has been asked to accept a work by Baron von Schrenck Notzing entitled *Phenomena of Materialisation* as a reason why actual intercommunication between the living and the dead must be held to happen. The Baron, in his contribution to the investigation of 'mediumistic teleplastics,' claims to give 'a full scientific account of a set of strange occurrences observed under the strictest conditions of control, and as

yet quite unexplained,' but though the occurrences are strange, and the photographs of primordial stuff stranger, the conditions of control were the reverse of strict, and the account is unscientific to a degree. As long as such phenomena as those narrated in this book are put forward as a proof of materialisation, so long has the medical man the right to warn his patients against any alteration of conduct from a belief that their lives are being practically affected by the energies of those who are dead. It is true that Sir Arthur Conan Doyle, in a set of lectures entitled *Death and the Hereafter*, delivered recently at Queen's Hall, quoted certain of the experiments recorded by Baron von Schrenck Notzing as evidence in favour of the actual materialisation, or re-incarnation, or transubstantiation, or continuous existence of the dead, but until the evidence of a chemical analysis, stated to be in existence, has been published, the conditions of the experiments have been explained and their repetition, with full scientific precaution, has been secured, Sir Arthur Conan Doyle, medical man as well as historian and novelist, will not expect his colleagues to be converted to his views.

Baron von Schrenck Notzing's work is an unfortunate one to be brought forward as a record of scientific experience because of the close way in which his description of materialisation phenomena follows the description given by well-known mystics. Cornelius Agrippa, originator of much semi-scientific disquisition, in his *De Principis*

Rerum Naturalium, mentions the bitter fight which has gone on from the beginnings of history among philosophers concerning the matter which should be held as the origin of all things, and in that chapter, as well as throughout the treatise *De Vanitate Omnium Scientiarum et Artium*, betrays how intimately scientific research has been mixed up from the beginning of time with magic, this being particularly the case in the fifteenth and sixteenth century when the search for the philosopher's stone and the elixir of life engaged so much attention. Thomas Vaughan, the author of *Aula Lucis* and eight or nine other treatises inculcating various mystical doctrines, acknowledges his indebtedness to Agrippa, and in one of his essays postulates a kind of primordial stuff whose elements are compounded by God into 'a sperm, viscous and slimy,' and throughout his writing speaks of something 'not water otherwise than to the sight, but a coagulable fat humidity' on the 'seminal viscosity of which vegetables feed.' In another place he speaks of 'a subtle moisture but glutinous'; a certain 'thick, permanent, saltish water that is dry and wets not the hands'; and of 'viscous slimy water generated out of the fatness of the earth.'

Vaughan claimed to have seen, handled and tasted what he believed to be the first matter, of which he says immediately later: 'In vegetables it oftentimes appears, for they feed not—as some think—on water but on this seminal viscosity that

is hid in the water. This indeed they attract at the roots, and from thence it ascends to the branches, but sometimes it happens by the way to break out at the bark, where, meeting with the cold air, it subsists and congeals to a gum. This congelation is not sudden but requires some small time, for if you find it while it is fresh it is an exceedingly subtle moisture but glutinous, for it will spin into strings as small as any hair ; and had it passed up to the branches it had been formed—in time—to a plum or cherry.’ Over and over again allusions are made in Vaughan’s eloquent and incomprehensible essays to some volatile coagulable origin of all things, formed, under the direction of some divine chemistry, from all the elements, ‘ fire, air and pure earth, overcast indeed with water.’

Compare some of these imaginings with the descriptions of the manifestations supposed to have taken place in connection with a medium, as recorded by Baron von Schrenck Notzing, and the similarity between the words of the modern scientist and the seventeenth-century mystic will be found striking.

The manifestations are supposed to emanate from the medium, from her skin, her eyes, her mouth or other orifices of her body. The emanation, we are told, may take the form of threads, white, grey or black, of clouds or mists, of ill-defined solid masses, of materials resembling muslin, wool, paper or other mundane substances ;

hands, arms or heads may be produced, and occasionally fully-formed phantoms of distinct character and definite features and forms. In mediumistic phraseology such manifestations are described as 'teleplastic phenomena,' as distinguished from the 'telekinetic' class which comprises the spiritists' table turnings, levitations, raps and 'direct' writing. But the plastic emanations which can turn from threads into ill-defined masses, and from ill-defined masses into limbs and heads, must be some form of primordial stuff summoned into material existence from some immaterial origin, and capable of infinite development.

Surely when we have arrived at this point we are far away from the sound and philosophic position of Sir Oliver Lodge, and when we remember the sort of semi-scientific muddle produced by Eugenius Philalethes and those whom he quotes as authorities, we are right in saying that along such paths no truth will be found. The works of Thomas Vaughan, however, are interesting as showing the way in which a philosophic search for primordial stuff, a search based upon what was known and directed towards probable issues, resulted in searches for the Elixir Vitae and the transmuting ferment of metals. Such novels as *Zanoni*, *A Strange Story* and *Les Mémoires d'un Médecin*, reproduce the plight into which imaginative people got when asked to believe that some 'first matter' contained elements which could be recovered as the elixir of life and the philosopher's stone. And

Bulwer Lytton and Dumas are very amusing reading.

There is no more typical man of science than the great physicist, and there is no more untypical man of science than the great physician ; but each alike desires to expand at the expense of metaphysics. In one case the solid foundation of learning is laid, the complete testing of every step as it is taken is supplied, by rulers, enumerators, balances and clocks, and every elaborate mechanical appliance that will measure, count, weigh or time. The physicist proceeds from point to point in his work, relying on the known or proven, eliminating imagination in the details of his work, though the theories may spring from boundless imaginings. The physicist may be, and if he is a great physicist he will be often, the superlative imager of any amongst us, but his imagination does not come into play while he is calculating his decimal points, weighing his inexpressibly large quantities or measuring his inexpressibly small ones. The theory, which he is either being led to found or is labouring to prove, can be the most daring flight of fancy, at any rate in its early stages, but the whole of his detailed work will be as matter of fact as he can make it, for in exposing his procedures to fellow-adepts there will be no room for private intuitions. The point is, therefore, that he will not be betrayed into daily multifarious error by his ability to use his powers of imagination, by his most reasonable willingness to believe that there

are all around us things to be seen which we cannot see and things to be heard that we cannot hear. But the physician is in a more perilous position with regard to the exercise of his imagination. The material in which he works can some of it be measured, counted, weighed and timed, but only some of it can be submitted to these processes, and then only partially. There is room for the play of imagination in the diagnosis of any pathological condition, and in the treatment either of a whole condition on broad lines or of any symptom associated with that condition. Exactly where to be guided by a physiology whose laws are fully known, and where by a psychology whose laws are but partly known, is a difficulty which is only added to if imagination is too freely employed; while if it is allowed uncontrolled play the errors of mysticism may push up rankly and suffocate the truth.

Scientific medicine can boldly associate itself with the vast mental projections of modern physics, and yet demand in the details of therapeutics the same close accuracy, and the same subordination of theory to practice, that the most transcendental physicist would have to display in doing an arithmetical sum. There may be more than possibility that we shall find in ether the medium of universal continuity, but does this prove the non-existence of any barrier between the quick and the dead? Not exactly; but it does remove such a view from the category of violent, visionary or poetic assumption, elevating it into a deduction from what we

postulate of the ether, and of the various modes of motion propagated therein. We are asked, it would seem, to regard the ether as the primordial substance from which the universe has been evolved, and to state what reasons we have for believing that, while certain products of such evolution are what we call 'living' and certain other products are what we call 'dead,' those products cannot remain in inter-relation.

The discovery of a primitive principle from which the contents of what man knows as the world have been developed, and in which, moreover, other worlds and world-systems have had their origin, has, of course, been the ideal of philosophy throughout the ages. Some philosophers replace to-day the water of Thales by an omnipresent and all-producing ether. The old Greek's was a grand conception, the scientific attainments of his day allowing him to attribute to water properties which it did not possess. Our increasing wisdom has compelled all theories concerning the primordial stuff to undergo the process of natural selection, and the claims of the ether will be tried in the same way. As these claims are placed before us we have to consider how far what we know supports them, and how far the undoubted harmonisation of, say, the principles of optics with the creation of force or energy from the ether may be used as a legitimate reason for larger beliefs. In doing this we must preserve the right attitude. We must not answer every question of every sort with the bald

expletive 'ether.' Similarly, we must not advance against the claims of ether our inability to picture its existence save by what we call imagination ; and the non-appearance of anything alike perfectly uniform and omnipresent is in accordance with what might be expected. The right course is to test the claims made for the ether side by side with physical and chemical phenomena, so that we may advance in our understanding.

In the 'Twelfth Kelvin Lecture' delivered before the Institution of Electrical Engineers, and published in *Nature* on March 17, 1921, and consecutive numbers, a brief summary is given of the results of experimental research on the properties of the electrons. The lecturer, Sir William Bragg, pointed out that, as knowledge grows, the importance of the part played by the electron in the mechanics of the world grows clearer ; there are all the signs of progress along a road leading somewhere, and continually the discovery is being made that some electron action phenomena are linked together between which we had hitherto seen no connection. 'Just as chemistry,' he says, 'has grown and prospered on its recognition of the unit of matter, so electrical science has already begun a new life, and, to all seeming, a most vigorous one, based on the understanding of Nature's unit of electricity. . . . If the chemist has found so much profit in his recognition of the fact that Nature has just so many ways, and no more, of doing up parcels of matter, the electrician will surely gain

in the same way when he grasps the fact that not merely is electricity measurable in quantity, but that there is already a unit of Nature's choice, possibly no more than one unit. We may say with justice that already the most wonderful advances in modern physics are the reward for our appreciation of this truth, and we may hope with equal justice that we are yet far from reaping the full benefit.'

Medical men will be found receptive of any new doctrines which physicists offer and which will stand such tests as medicine can apply, wherever the doctrines may conduct them. To return to the question asked at the beginning : What is the position of the medical man with regard to the belief that material proofs are accumulating of inter-relation between the living and the dead ? The medical man's work must, on the one hand, be guided by exact knowledge, and must on the other be unfettered on its imaginative side. Remembering the dilemma in which he is placed, it is suggested that his duty to heal and prevent disease does not ask him to account as proven any of the so-called phenomena of materialisation. Where a medical man finds his patients in any way mentally oppressed by the tenets of spiritualism, he may without fear of being a stumbling-block to knowledge point out to them that not a single thing has yet been proved in respect of 'mediumistic teleplastics,' nor are the phenomena in accordance

with any scientific laws. As he cannot utter any comprehensive denials, his position in respect of those to whom the doctrines of spiritualism are comforting may well be one of congratulation. He can be pleased that they are pleased, even if he cannot go with them in the way.

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